

Chapter 1



USFWS

Mason Neck Refuge

The Purpose of and Need for Action

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Introduction

This document supports development of a Comprehensive Conservation Plan (CCP) for Elizabeth Hartwell Mason Neck National Wildlife Refuge (Mason Neck Refuge; refuge) and Featherstone National Wildlife Refuge (Featherstone Refuge; refuge). These refuges, together with Occoquan Bay National Wildlife Refuge (Occoquan Bay Refuge), comprise the Potomac River National Wildlife Refuge Complex (Refuge Complex) in northern Virginia (map 1.1). A CCP for Occoquan Bay National Wildlife Refuge was completed in 1997 (USFWS, 1997).

Mason Neck Refuge was established in 1969 as the first national wildlife refuge specifically created to protect a Federal-listed endangered or threatened species. The refuge was created under the authority of the Endangered Species Preservation Act of 1966, the precursor to the current-day Endangered Species Act of 1973. The bald eagle (*Haliaeetus leucocephalus*), which was Federal-listed as threatened in 1969 was, and continues to be, the focal species of concern on the refuge. Due to successful recovery efforts throughout its range, the bald eagle was officially removed from the Federal list in 2007. It continues to be protected, however, under other Federal laws and by the Commonwealth of Virginia. Mason Neck Refuge encompasses 2,277 acres of forest, marsh, and riverine habitat along Occoquan Bay and the mainstem of the tidal Potomac River (map 1.2).

Featherstone Refuge was established in 1979 with land acquired from the District of Columbia. It was further expanded in 1992 with lands donated by Prince William County. It presently encompasses 325 acres of marsh and forested riverine habitat along the southwest edge of Occoquan Bay (map 1.3). Its wetlands are important habitat for bald eagles, wading and waterbirds, and waterfowl, as well as other native species of conservation concern.

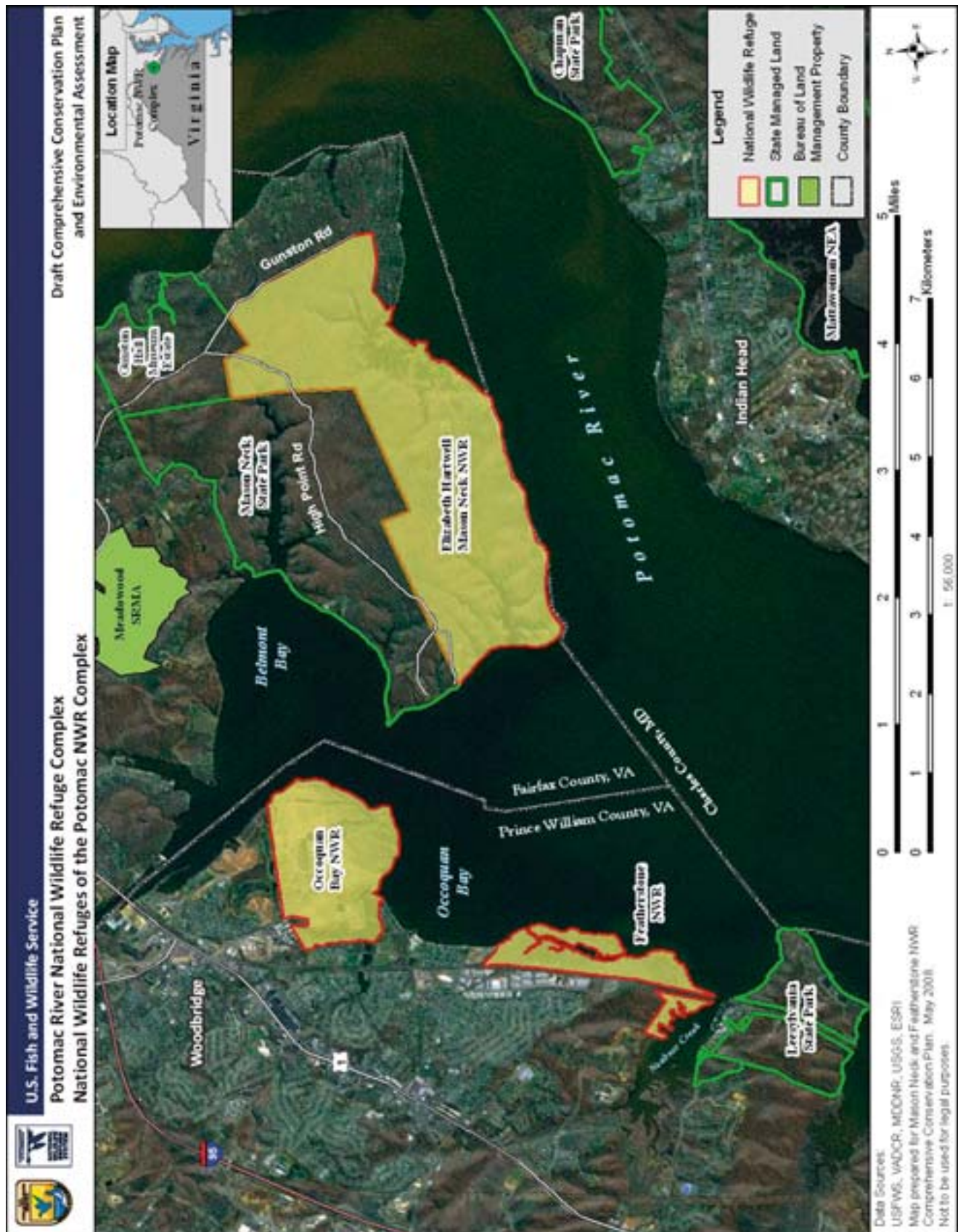
Occoquan Bay Refuge was established in 1998, combining land previously acquired as Marumsco Refuge in 1972 and later, military surplus lands. Its 642 acres include extensive grasslands interspersed with marshes and early successional shrub and forest areas that support neotropical migratory birds and grassland-dependent species. For further details on this refuge and its management, please contact refuge headquarters staff or visit the refuge website at <http://www.fws.gov/occoquanbay/index.html>.

In 1998, Mason Neck, Featherstone, and Occoquan Bay Refuges were administratively organized into the Potomac River National Wildlife Refuge Complex. This organization was based in large part on recognizing that Occoquan Bay Refuge had grown to equal Mason Neck Refuge in management complexity. This change necessitated a broader sharing of staff and resources to address the management requirements of all three refuges simultaneously. Given the close proximity of the three refuges, combining their administration made sense from an efficiency standpoint.

The U.S. Fish and Wildlife Service (Service; we; our) propose to manage Mason Neck and Featherstone Refuges under CCPs developed through a planning process, including an environmental assessment (EA), which meets the requirements of two Federal laws:

- the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Pub. L. 105-57; 111 Stat. 1253; Refuge Improvement Act)
- the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 et seq.; 83 Stat. 852), as amended

Map 1.1. Potomac River National Wildlife Refuge Complex



Map 1.2. Mason Neck National Wildlife Refuge Boundary and Features



Map 1.3. Featherstone National Wildlife Refuge Boundary and Features



This draft CCP/EA fully evaluates management alternatives for Mason Neck and Featherstone refuges which differ in how they address goals and the public issues identified during scoping and outlined later in this chapter. Following public review of this document, the Regional Director's decision on the alternatives will result in final CCPs for each refuge to guide management decisions over the next 15 years. We will also use CCPs to promote understanding and support for refuge management among State agencies in Virginia, our conservation partners, local communities, and the public.

Document Organization

This draft CCP/EA has six chapters and six appendixes. Chapter 1 sets the stage for the rest of the document by:

- describing the purpose of, and need for, a CCP and EA;
- defining our planning analysis area;
- presenting the mission, policies and mandates affecting the development of the plan;
- identifying other conservation plans we used as references;
- clarifying the vision and goals that drive refuge management;
- describing our planning process, including public and partner involvement, and its compliance with National Environmental Policy Act (NEPA) regulations; and,
- identifying public issues or concerns that surfaced during plan development.

Chapter 2, "Description of the Affected Environment," describes the two refuges' regional and local settings, physical attributes, habitats and species, and human-built infrastructure.

Chapter 3, "Alternatives Considered, including the Service-preferred Alternative," presents the three management alternatives we evaluated for Mason Neck Refuge and the two management alternatives for Featherstone Refuge. Each set of alternatives comprises different strategies for meeting the respective refuge's goals and objectives, and for addressing public issues.

To summarize the alternatives we consider for Mason Neck Refuge:

Alternative A—continuing our present management of the refuge;

Alternative B—managing it to benefit Federal trust resources dependent on mature forests and freshwater wetlands, and maintain quality public use programs; or,

Alternative C—maintaining the current biological program, but expanding public uses.

To summarize the alternatives we consider for Featherstone Refuge:

Alternative A—continuing our present refuge management; or

Alternative B—protecting wetlands and mature forest habitats, and, assuming safe, public access is secured, offering wildlife-dependent public use on the refuge.

For both refuges, we have identified Alternative B as the Service-preferred alternative.

Chapter 4, “Environmental Consequences,” evaluates the environmental effects of implementing each of the management alternatives. That is, it predicts the foreseeable benefits and potential adverse impacts for the socioeconomic, physical, cultural, and biological environments described in chapter 2.

Chapter 5, “Consultation and Coordination with Others,” summarizes how the public and our partners were involved in the planning process. Their involvement is vital for the future management of the refuges.

Chapter 6, “List of Preparers,” credits this plan’s writers and contributors.

Six appendixes provide additional supporting documentation and references:

- Appendix A: Species and Habitats of Conservation Concern, and Other Species Lists For the Refuges
- Appendix B: Findings of Appropriateness and Compatibility Determinations
- Appendix C: Refuge Operations Needs System (RONS) and Service Asset Maintenance Management System (SAMMS)
- Appendix D: Wilderness Review
- Appendix E: Staffing Charts by Alternative
- Appendix F: Archeological and Historical Resources Overview

The Purpose of and Need for the Proposed Action

We propose to develop CCPs for Mason Neck and Featherstone Refuges that, in the Service’s professional judgment, best:

- achieve each refuge’s purposes, vision, and goals;
- contribute to the mission and goals of the National Wildlife Refuge System (Refuge System);
- adhere to Service policies and other mandates;
- address significant issues; and
- incorporate sound principles of fish and wildlife science.

In developing a final plan, NEPA regulations require us to evaluate a reasonable range of alternatives, including our preferred action and “no action.” The no-action alternative can mean either (1) not managing the refuge, or (2) not changing its present management. For both refuges included in this plan, alternative A is the latter which we refer to as “current management.” All alternatives will be evaluated and compared as to how well they meet the purpose of, and the need for, a CCP.

The specific *purpose of* adopting a CCP for each refuge is to accomplish the following goals:

Mason Neck Refuge Goals

Goal 1. Protect, enhance, and restore the biological integrity, diversity, and environmental health of mature hardwood-mixed forests to support native wildlife and plant communities including species of conservation concern.

Goal 2. Protect, enhance, and restore the biological integrity, diversity, and environmental health of wetland habitats and shorelines to support native wildlife and plant communities including species of conservation concern.

Goal 3. Provide quality, compatible wildlife-dependent recreational opportunities with particular emphasis on interpretation and wildlife observation.

Goal 4. Enhance efforts to promote awareness, understanding, and support of the values of the refuge, the resources of the Chesapeake Bay watershed, and the mission of the National Wildlife Refuge System.

Goal 5. Enhance efforts to protect and interpret refuge cultural resources.

Featherstone Refuge Goals

Goal 1. Protect forest, wetland, and shoreline habitats to support native wildlife and plant communities including species of conservation concern.

Goal 2. Provide compatible, wildlife-dependent recreational opportunities to increase the enjoyment and appreciation of the refuge's resources to visitors and nearby residents.

Goal 3. Promote awareness, understanding, and support of the values of the refuge, the resources of the Chesapeake Bay watershed, and the mission of the National Wildlife Refuge System.

There are several reasons we identify a *need for* CCPs on these refuges. First, the 1997 Refuge Improvement Act requires us to write a CCP for every national wildlife refuge to help fulfill the mission of the Refuge System. Also, new Service policies providing specific guidance on implementing the Improvement Act have been developed since the refuges were established. A CCP incorporates those policies, and specifically fulfills the need to provide each refuge with strategic management direction for the next 15 years by:

- stating clearly the desired future conditions for refuge habitat, wildlife, visitor services, staffing, and facilities
- explaining clearly to state agencies, refuge neighbors, visitors, and partners the reasons for management actions
- ensuring that refuge management conforms to the policies and goals of the Refuge System and legal mandates
- ensuring that present and future wildlife dependent public uses are compatible with the purposes of the refuge
- providing long-term continuity and direction in refuge management
- justifying budget requests for staffing, operating and maintenance funds

In addition, both refuges lack master plans to accomplish the actions above in a regional landscape and economy that has changed considerably since the refuges

were established. Additionally, pressures for public access have continued to grow, and new ecosystem and species conservation plans bearing directly on management of the two refuges have been developed.

Also, in recent years, we have developed strong partnerships vital for our continued success, and we must convey our vision for the refuge to those partners and the public.

Finally, we need CCPs to guide us in conserving Federal trust species along the shoreline of the tidal Potomac River that are consistent with the overarching vision of the Potomac River Refuge Complex.

All of these reasons underscore the need for the strategic direction a CCP provides. To help us resolve management issues and public concerns, our planning process incorporates input from State natural resource agencies in Virginia, affected communities, individuals and organizations, our partners and the public.

Regional Context and Project Analysis Area

The regional context (map 1.4) is the Chesapeake Bay and the portion of the Chesapeake Bay watershed drained by the Potomac River.

The project analysis area (map 1.5) includes:

- The local watershed of the three refuges in the Potomac River Refuge Complex—the Middle Potomac–Anacostia–Occoquan sub-watershed
- The migratory bird conservation area defined by the Atlantic Coast Joint Venture (ACJV) as the Tidal Potomac River focus area
- The Lower Potomac River Important Bird Area (IBA) designated by the National Audubon Society (NAS, 2007)
- The Coastal Plain-Potomac Ecological Drainage Unit (EDU), defined by VDGIF for conservation of State aquatic species of concern (VDGIF, 2005)

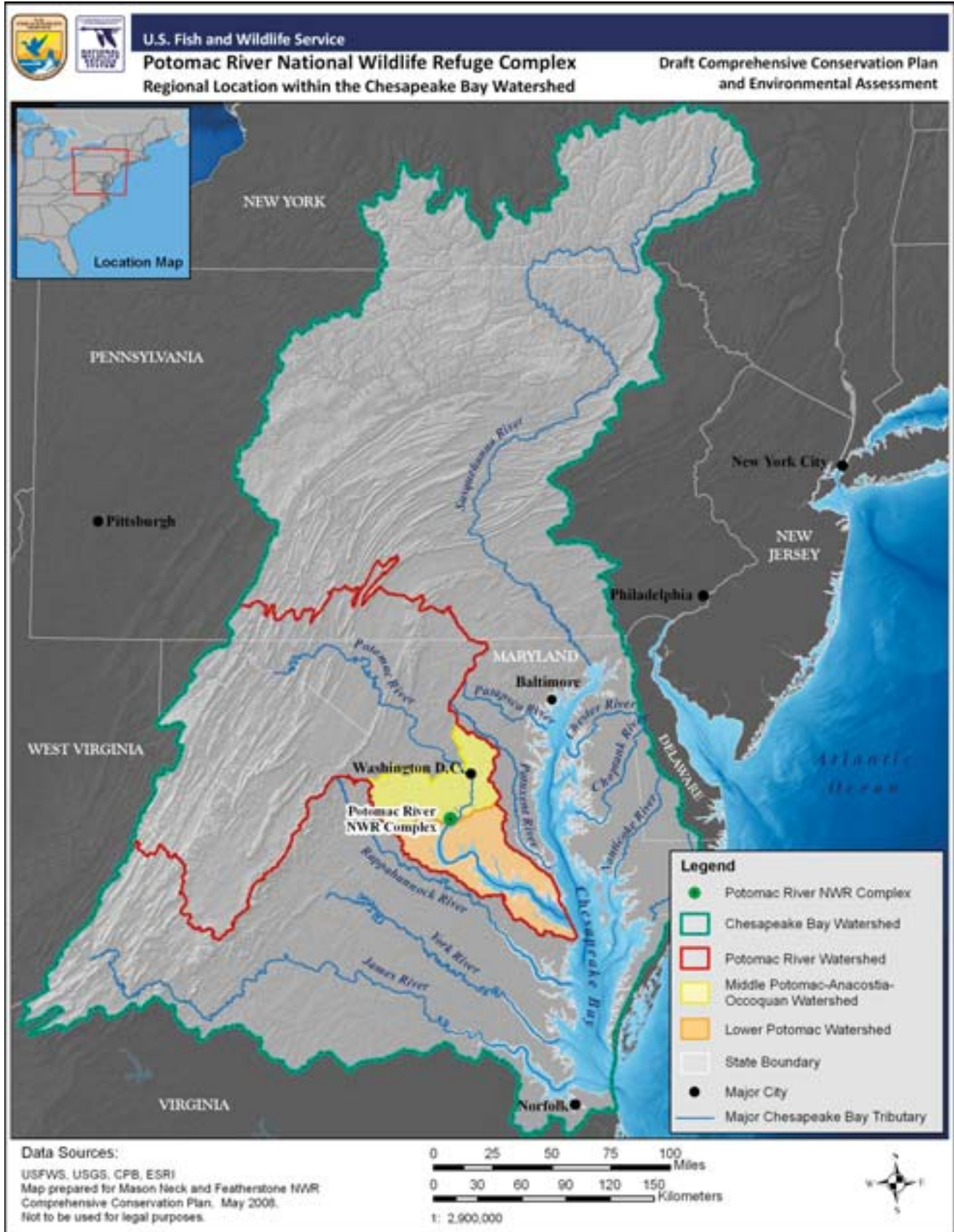
The main stem of the Potomac River is under the jurisdiction of the State of Maryland. Tributaries, embayments and backwaters on the Virginia side—outside of the main stem—such as Occoquan Bay, are under the jurisdiction of the Commonwealth of Virginia.

Socioeconomic Context

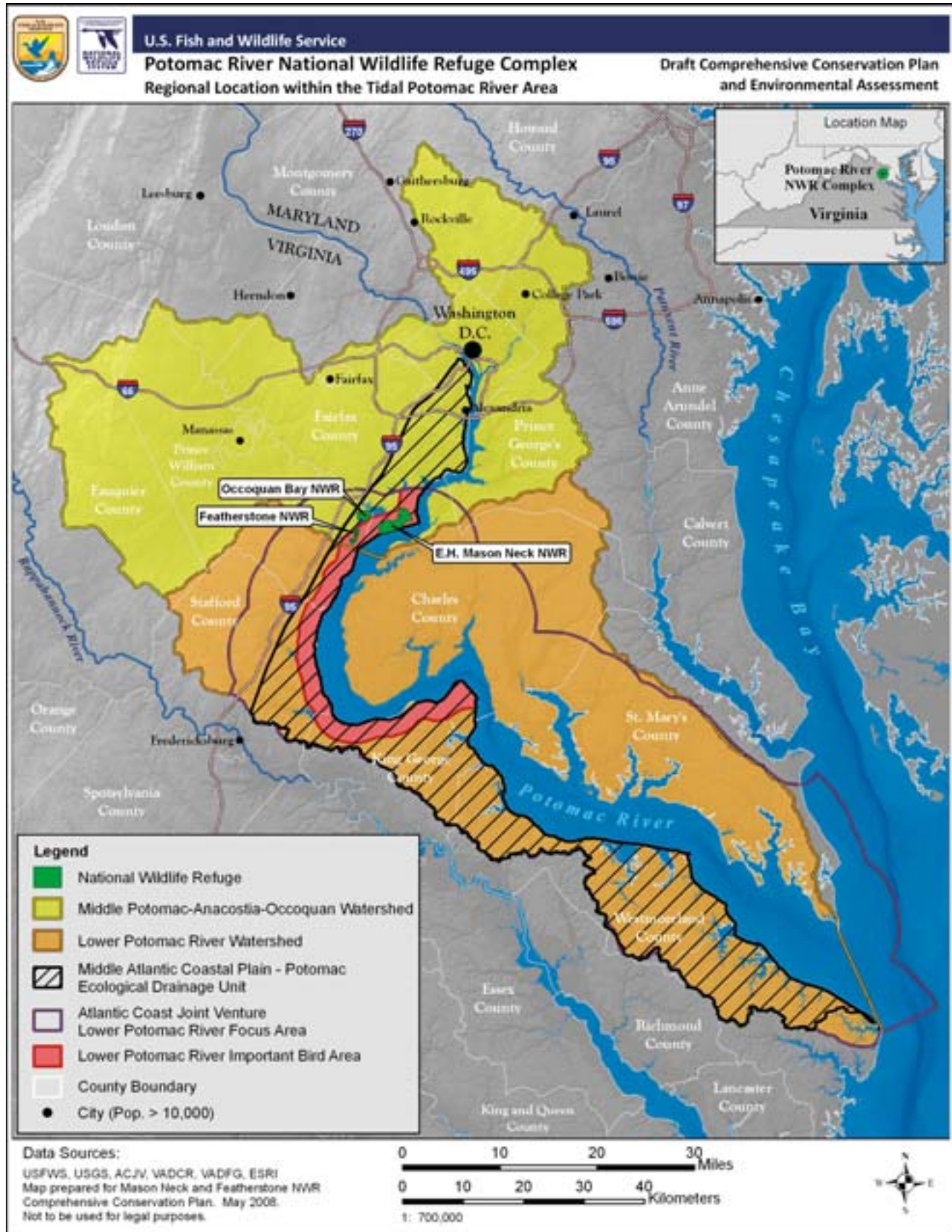
The socio-economic context for both refuges is northern Virginia, which has a geographic area of approximately 1,304 square miles and is home to over 2,000,000 residents (NVRC, 2010). Northern Virginia is a sub-area of both the state of Virginia and the Washington, D.C. metropolitan area. It borders Maryland and Washington, D.C. along the Potomac River and is found at the northeastern reaches of Virginia (map 1.6).

The Northern Virginia Regional Commission (NVRC) compiles a wide range of information regarding the demographic, social and economic characteristics of the northern Virginia population. The NVRC is a regional council of representing the local governments. Its fourteen members comprise four counties: Arlington, Fairfax, Loudoun and Prince William; five independent cities: Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park; and five incorporated towns: Dumfries, Herndon, Leesburg, Purcellville and Vienna. The NVRC's Northern Virginia Databook (2003) presents a range of demographic information including data on income, education, taxes, employment, economics, housing, and transportation. The Databook, with data organized by city and county, is available online from <http://www.novaregion.org/>.

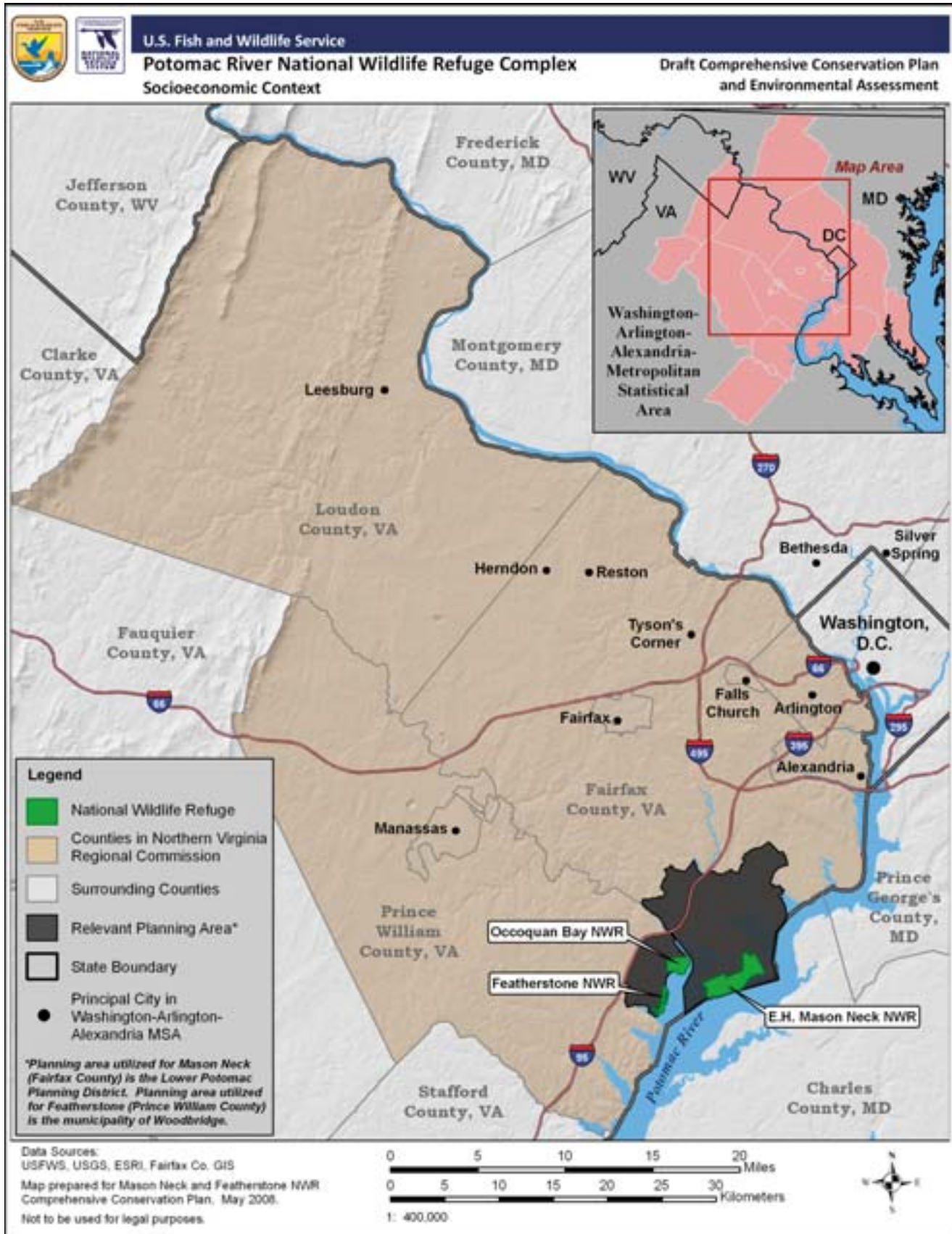
Map 1.4. Potomac River Refuge Complex and its Regional Context



Map 1.5. Mason Neck and Featherstone Refuges Project Analysis Area



Map 1.6. Mason Neck and Featherstone Refuges Socioeconomic Context



The Service and Refuge System Policies and Mandates Guiding Planning

The U.S. Fish and Wildlife Service and its Mission

The Service is part of the Department of the Interior. Our mission is “*Working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.*”

Congress entrusts to the Service the conservation, protection and enhancement of these national natural resources:

- migratory birds and fish;
- Federal-listed endangered or threatened species;
- inter-jurisdictional fish;
- wetlands;
- certain marine mammals; and,
- national wildlife refuges

In addition to national wildlife refuges, the Service operates national fish hatcheries, fisheries assistance field offices, and ecological services field offices. It also enforces Federal wildlife laws and international treaties on importing and exporting wildlife, assists states with their fish and wildlife programs, and helps other countries develop conservation programs.

The Service Manual, available online at <http://www.fws.gov/policy/manuals/>, contains the standing and continuing directives on fulfilling our responsibilities. The 600 series of the Service Manual addresses land use management, and sections 601-609 specifically address management of national wildlife refuges.

The Service publishes special directives that affect the rights of citizens or the authorities of other agencies separately in the Code of Federal Regulations (CFR); the Service Manual does not duplicate them (see 50 CFR 1-99 online at <http://www.gpoaccess.gov/cfr/index.html>).

The National Wildlife Refuge System and its Mission and Policies

The Refuge System is the world’s largest collection of lands and waters set aside specifically for the conservation of wildlife and the protection of ecosystems. More than 550 national wildlife refuges encompass more than 150 million acres of lands and waters in all 50 states and several island territories. Each year, more than 40 million visitors hunt, fish, observe and photograph wildlife, or participate in environmental education and interpretation on refuges.

In 1997, President William Jefferson Clinton signed into law the Refuge Improvement Act. That act establishes a unifying mission for the Refuge System.

“The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”—Refuge Improvement Act; Public Law 105-57

It also establishes a new process for determining the compatibility of public uses on refuges, and requires us to prepare a CCP for each refuge. The Act states that the Refuge System must focus on wildlife conservation. It also states that the mission of the Refuge System, coupled with the purposes for which each refuge was established, will provide the principal management direction on that refuge.

The Refuge System Manual contains policy governing the operation and management of the Refuge System that the Service Manual does not cover, including technical information on implementing refuge policies and guidelines on enforcing laws. These are a few noteworthy policies instrumental in developing these CCPs.

Policy on the National Wildlife Refuge System Mission, Goals and Purposes

This policy (601 FW 1) sets forth the Refuge System mission noted above, how it relates to the Service mission, and explains the relationship of the Refuge System mission and goals, and the purpose(s) of each unit in the Refuge System. In addition, it identifies the following Refuge System goals:

- conserve a diversity of fish, wildlife, and plants;
- develop and maintain a network of habitats;
- conserve those ecosystems, plant communities, and wetlands that are unique within the United States;
- provide and enhance opportunities to participate in compatible, wildlife-dependent recreation; and,
- help to foster public understanding and appreciation of the diversity of fish, wildlife, plants and their habitats.

This policy also establishes management priorities for the Refuge System:

- conserve fish, wildlife, and plants and their habitats;
- facilitate compatible wildlife-dependent recreational uses; and,
- consider other appropriate and compatible uses.

Policy on Refuge System Planning

This policy (602 FW 1, 2, and 3) establishes the requirements and guidance for Refuge System planning, including CCPs and step-down management plans. It states that we will manage all refuges in accordance with an approved CCP that, when implemented, will help

- achieve refuge purposes;
- fulfill the Refuge System mission;
- maintain and, where appropriate, restore the ecological integrity of each refuge and the Refuge System;
- achieve the goals of the National Wilderness Preservation System and the National Wild and Scenic Rivers System; and,
- conform to other mandates.

This planning policy (602 FW 3) provides guidance, systematic direction, and minimum requirements for developing all CCPs, and provides a systematic decision-making process that fulfills those requirements. Among them, we are to review any existing special designation areas or the potential for such designations (e.g., Wilderness and Wild and Scenic Rivers); and, incorporate a summary of those reviews into each CCP.

Policy on Maintaining Biological Integrity, Diversity, and Environmental Health

This policy (601 FW 3) provides guidance on maintaining or restoring the biological integrity, diversity, and environmental health of the Refuge System, including the protection of a broad spectrum of fish, wildlife, and habitat resources in refuge ecosystems. It provides refuge managers with a process for evaluating the best management direction to prevent the additional degradation of environmental conditions and restore lost or severely degraded environmental components. It also provides guidelines for dealing with external threats to the biological integrity, diversity, and environmental health of a refuge and its ecosystem.

Policy on Wildlife-Dependent Recreation

This policy (605 FW 1-7) includes 7 chapters providing Service policies, strategies, and requirements concerning the management of wildlife-dependent recreation programs within the Refuge System. The 1997 Refuge Improvement Act establishes that “compatible wildlife-dependent recreation is a legitimate and appropriate general public use of the Refuge System.” The overarching goal of this policy is to enhance wildlife-dependent recreation opportunities and access to quality visitor experiences on refuges while managing refuges to conserve fish, wildlife and plants and their habitats. New and ongoing recreational uses should help visitors focus on wildlife and other natural resources. These uses should provide an opportunity to make visitors aware of resource issues, management plans, and how the refuge contributes to the Refuge System and Service missions. Thus, we only allow wildlife-dependent recreation on a refuge after we first determine it is appropriate and compatible (see discussions below). Six wildlife-dependent uses were identified in the 1997 Refuge Improvement Act as being priority general public uses of the Refuge System and should receive enhanced consideration over non-priority uses. Those uses are: hunting, fishing, wildlife observation and photography, and environmental education and interpretation. Chapters 2 through 7 present guiding principals for each of these respective uses and provides guidance on how to plan for, establish, conduct and evaluate each program.



Green-backed heron

Lee Karney/USFWS

Policy on Appropriateness of Refuge Uses

Federal law and Service policy provide the direction and planning framework for protecting the Refuge System from inappropriate, incompatible or harmful human activities and ensuring that visitors can enjoy its lands and waters. This policy (603 FW 1) provides a national framework for determining appropriate refuge uses in an effort to prevent or eliminate those uses that should not occur in the Refuge System. It describes the initial decision process the refuge manager follows when first considering whether or not to allow a proposed use on a refuge. A required form documents the decision. An appropriate use must meet at least one of the following four conditions:

- 1) The use is a wildlife-dependent recreational use as identified in the Refuge Improvement Act.
- 2) The use contributes to fulfilling the refuge purpose(s), the Refuge System mission, or goals or objectives described in a refuge management plan approved after October 9, 1997, the date the Refuge Improvement Act was signed into law.
- 3) The use involves the take of fish and wildlife under State regulations.
- 4) The use has been found to be appropriate after concluding a specified findings process using 10 criteria.

Policy on Compatibility

This policy (603 FW 2) relates to the appropriateness policy. The refuge manager must first find a use is appropriate before undertaking a compatibility review of that use. If the proposed use is not found appropriate, the refuge manager will not allow the use and will not prepare a compatibility determination.

This policy and its regulations, along with a description of the process and requirements for conducting compatibility reviews, can be viewed on-line at <http://www.fws.gov/policy/603fw2.html>. Our summary follows:

- The Refuge Improvement Act and its regulations require an affirmative finding by the refuge manager on the compatibility of a public use before it is allowed on a national wildlife refuge.
- A compatible use is one “that will not materially interfere with or detract from the fulfillment of the mission of the Refuge System or the purposes of the refuge.”
- The act defines six wildlife-dependent uses that are to receive enhanced consideration on refuges: hunting, fishing, wildlife observation and photography, and environmental education and interpretation.
- The refuge manager may authorize those priority uses on a refuge when they are compatible and consistent with public safety.
- When the refuge manager publishes a compatibility determination, it will stipulate the required maximum reevaluation dates: 15 years for wildlife-dependent recreational uses; or 10 years for other uses.
- However, the refuge manager may reevaluate the compatibility of any use at any time: for example, sooner than its mandatory date, or even before we complete the CCP process, if new information reveals unacceptable impacts or incompatibility with refuge purposes (602 FW 2.11, 2.12).
- The refuge manager may allow or deny any use, even one that is compatible, based on other considerations such as public safety, policy, or available funding.

Other Mandates

Although Service and Refuge System policy, along with each refuge’s purposes, provides the foundation for its management, there are other Federal laws, executive orders, treaties, interstate compacts, and regulations on conserving and protecting natural and cultural resources that also affect how we manage refuges. A centralized library of Service-wide policies, executive orders, director’s orders, and the “Digest of Federal Resource Laws of Interest to the U.S. Fish and Wildlife Service” can be viewed at <http://www.fws.gov/laws/Lawsdigest.html>.

Of particular note are Federal laws that require the Service to identify and preserve its important historic structures, archaeological sites, and artifacts. NEPA mandates our consideration of cultural resources in planning Federal actions. The Refuge Improvement Act requires that the CCP for each refuge identify its archaeological and cultural values. The following is a highlight of some cultural and historic resource protection laws which relate to the development of CCPs.

- The Archaeological Resources Protection Act (16 U.S.C. 470aa–470ll; Public Law 96-95) approved October 31, 1979, (93 Stat. 721), referred to as ARPA, largely supplanted the resource protection provisions of the Antiquities Act of 1906 for archaeological items. ARPA established detailed requirements for issuance of permits for any excavation for or removal of archaeological resources from Federal or Indian lands. It also establishes civil and criminal penalties for the unauthorized excavation, removal, or damage of any such resources; for any trafficking in such resources removed from Federal or Indian land in violation of any provision of Federal law; and for interstate and foreign commerce in such resources acquired, transported or received in violation of any state or local law.
- The Archeological and Historic Preservation Act (16 U.S.C. 469-469c; Public Law 86-523,) approved June 27, 1960, (74 Stat. 220) as amended by Public Law 93-291, approved May 24, 1974, (88 Stat. 174) carries out the policy established by the Historic Sites Act (see below). It directs Federal agencies to notify the Secretary of the Interior whenever they find a Federal or Federal-assisted, licensed or permitted project may cause loss or destruction of significant scientific, prehistoric or archaeological data. The Act authorizes use of appropriated, donated and/or transferred funds for the recovery, protection and preservation of such data.
- The Historic Sites, Buildings and Antiquities Act (16 U.S.C. 461-462, 464-467; 49 Stat. 666) of August 21, 1935, popularly known as the Historic Sites Act, as amended by Public Law 89-249, approved October 9, 1965, (79 Stat. 971) declares it a national policy to preserve historic sites and objects of national significance, including those located on refuges. It provides procedures for designation, acquisition, administration and protection of such sites. Among other things, National Historic and Natural Landmarks are designated under authority of this Act. More than 30 national wildlife refuges contain such sites.
- The National Historic Preservation Act of 1966 (16 U.S.C. 470-470b, 470c-470n) Public Law 89-665, approved October 15, 1966, (80 Stat. 915) and repeatedly amended, provides for preservation of significant historical features (buildings, objects and sites) through a grant-in-aid program to the States. It established a National Register of Historic Places and a program of matching grants under the existing National Trust for Historic Preservation (16 U.S.C. 468-468d). This Act also established an Advisory Council on Historic Preservation, which was made a permanent independent agency in Public Law 94-422, approved September 28, 1976 (90 Stat. 1319). That Act also created the Historic Preservation Fund. Federal agencies are directed to take into account the effects of their actions on items or sites listed or eligible for listing in the National Register. At least 90 historic sites on national wildlife refuges have been placed on the National Register.

The Service also owns and cares for museum properties. The most common are archaeological collections, art, zoological and botanical collections, historical photographs, and historic objects. Each refuge maintains an inventory of its museum property. Our museum property coordinator in Hadley, Massachusetts guides the refuges in caring for that property and helps us comply with the

Native American Grave Protection and Repatriation Act and Federal regulations governing Federal archaeological collections. Our program ensures that Service collections will continue to be available to the public for education and research.

Two other Federal resource laws are also important to highlight as they are integral to developing a CCP. They can be viewed in their entirety at: <http://www.fws.gov/laws/lawsdigest/ResourceLaws.html>.

- The Wilderness Act of 1964 (16 U.S.C. 1131-1136; PL 88-577) established a National Wilderness Preservation System (NWPS) that is composed of Federal-owned areas designated by Congress as “Wilderness Areas.” The Act directs each agency administering designated wilderness to preserve the wilderness character of areas within the NWPS, and to administer the NWPS for the use and enjoyment of the American people in a way that will leave these areas unimpaired for future use and enjoyment as wilderness. The Act also directed the Secretary of the Interior, within 10 years, to review every roadless area of 5,000 or more acres and every roadless island (regardless of size) within National Wildlife Refuge and National Park Systems for inclusion in the National Wilderness Preservation System. Service planning policy requires we evaluate the potential for wilderness on refuge lands, as appropriate, during the CCP planning process.
- The Wild and Scenic Rivers Act of 1968, as amended, selects certain U.S. rivers possessing remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values: preserves them in a free-flowing condition and protects their local environments. Service planning policy requires we evaluate the potential for wild and scenic rivers designation on refuge lands, as appropriate, during the CCP planning process.

Chapter 4, “Environmental Consequences,” evaluates this plan’s compliance with the Acts noted above, as well as the Clean Water Act of 1977 as amended (33 U.S.C. 1251 *et seq.*; PL 107-303), Clean Air Act of 1970 as amended (42 U.S.C. 7401 *et seq.*), and the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531-1544), as amended. This draft CCP/EA fulfills the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321-4347), and the Council on Environmental Quality’s (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508).

Our mandates also include orders directed by the President, Secretary of Interior, and/or Director of the U.S. Fish and Wildlife Service. Several of these mandates of special importance to this CCP/EA are:

- Presidential Executive Order 13508—Chesapeake Bay Protection and Restoration (signed May 12, 2009). This order furthers the purpose of the Clean Water Act of 1972, as amended (33 U.S.C. 1251 *et seq.*), and other laws “...to protect and restore the health, heritage, natural resources, and social and economic value of the Nation’s largest estuarine ecosystem and the natural sustainability of its watershed.” It recognizes the Chesapeake Bay as “a national treasure constituting the largest estuary in the United States and one of the largest and most biologically productive estuaries in the world.” The order also establishes the development of a strategy for coordinated implementation of existing programs and projects and development of an annual action plan and accomplishment reports. It also requires collaboration with state partners. The focus of the coordinated implementation plan will be to address: 1) water quality; 2) sources of pollution from agricultural lands and Federal lands and facilities; 3) protecting the Bay’s resources as the climate changes; 4) expanding opportunities for public access; 5) conserving landscapes and ecosystems; 6) the monitoring and accountability of activities.

- Secretarial Order 3289 –Addressing the Impacts of Climate Change on America’s Water, Land, and Other Natural and Cultural Resources, was issued on September 14, 2009. This order establishes a Department-wide, science-based approach to increasing our understanding of climate change and to coordinate an effective response to its impacts on tribes and on the land, water, ocean, fish and wildlife, and cultural heritage resources that the Department manages. The order requires a “Climate Change Response Council” that will execute a coordinated Department-wide strategy to increase scientific understanding and the development of adaptive management tools to address the impact of climate change on our natural and cultural resources. The Council will help coordinate activities within and among Federal agencies. Land management agencies are directed to pursue appropriate activities to reduce their carbon footprint, adapt water management strategies to address the possibility of a shrinking water supply, and protect and manage land in anticipation of sea level rise, shifting wildlife populations and habitats, increased wildland fire threats, and an increase in invasive and exotic species.
- Presidential Executive Order 13443–Facilitation of Hunting Heritage and Wildlife Conservation was issued on August 16, 2007. The purpose of this order is to direct Federal agencies that have programs and activities affecting public land management, outdoor recreation, and wildlife management, including the Department of the Interior and the Department of Agriculture, to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat. Federal agencies are directed to pursue certain activities listed in the Order, consistent with their missions. Those activities include managing wildlife and wildlife habitats on public lands in a manner that expands and enhances hunting opportunities, and working with state and tribal governments to manage wildlife and habitats to foster healthy and productive populations and provide appropriate opportunities for the public to hunt those species.

Conservation Plans and Initiatives Guiding the Project

Birds of Conservation Concern 2008 Report (USFWS, 2008)

The Service developed this report (USFWS, 2008) as an update to their 2002 report in consultation with the leaders of ongoing bird conservation initiatives and such partnerships as Partners in Flight (PIF), the North American Waterfowl Management Plan (NAWMP) and Joint Ventures, the North American Waterbird Conservation Plan (NAWCP), and the U.S. Shorebird Conservation Plan. It fulfills the mandate of the 1988 amendment to the Fish and Wildlife Conservation Act of 1980 (100 Pub. L. 100–653, Title VIII), requiring the Secretary of the Interior, through the Service, to “identify species, subspecies, and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973.”

The overall goal of this report is to accurately identify the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent our highest conservation priorities.

The geographic scope of this endeavor is the entire U.S., including U.S. island territories in the Pacific and Caribbean. The report encompasses three distinct geographic scales: 1) National; 2) North American Bird Conservation Initiative (NABCI) Bird Conservation Regions (BCRs); and, 3) the eight Service Regions.

This report lists priority bird species of conservation concern at each scale which are primarily derived from assessment scores from three major bird conservation plans: 1) the Partners in Flight North American Landbird Conservation Plans; 2) the U.S. Shorebird Conservation Plan; and 3) the North American Waterbird Conservation Plan. Bird species included on lists in the report include nongame birds, gamebirds without hunting seasons, subsistence-hunted nongame birds in Alaska, and Federal Endangered Species Act candidate, proposed endangered or threatened, and recently delisted species. Population trends, threats distribution, abundance and relative density were all factors considered.

This report is intended to stimulate coordinated and collaborative proactive conservation actions among Federal, State, Tribal, and private partners. It is hoped that by focusing attention on these highest-priority species, this report will promote greater study and protection of the habitats and ecological communities upon which these species depend, thereby contributing to healthy avian populations and communities. You may access the report at: <http://www.fws.gov/migratorybirds/reports/BCC2008m.pdf>. This is one of the plans we used in identifying species of concern in appendix A, and in developing management objectives and strategies under goals 1 and 2.

**North American Waterfowl
Management Plan
(NAWMP; update 2004)
and Joint Venture Plans**

Originally written in 1986, the NAWMP describes a 15-year strategy for the United States, Canada, and Mexico to restore and sustain waterfowl populations by protecting, restoring and enhancing habitat. The plan committee, including representatives from all three countries, has modified the 1986 plan twice to account for biological, sociological, and economic changes that influenced the status of waterfowl and to allow cooperative habitat conservation. The most recent modification in 2004 updates the latest needs, priorities, and strategies for the next 15 years, and guides partners in strengthening the biological foundation of North American waterfowl conservation and stakeholder confidence in the direction of the plan. You may access the report at: <http://www.fws.gov/birdhabitat/NAWMP/files/ImplementationFramework.pdf>.

To convey goals, priorities, and strategies more effectively, that 2004 modification comprises two separate documents: Strategic Guidance and Implementation Framework. The former is for agency administrators and policy-makers who set the direction and priorities for conservation. The latter includes supporting technical information for use by biologists and land managers.

The plans are implemented at the regional level in 14 habitat Joint Ventures and 3 species Joint Ventures (Arctic Goose, Black Duck, and Sea Duck). The Refuge Complex lies in the Atlantic Coast Joint Venture (ACJV), which includes all the Atlantic Flyway states from Maine to Florida and Puerto Rico. The ACJV Waterfowl Implementation Plan was completed in June 2005. The Refuge Complex lies within the plan's "Lower Potomac River—Virginia Sub-focus Area" (map 1.5). You can view the plan online at <http://www.acjv.org/planning.htm>.

The waterfowl goal for the ACJV is to "[p]rotect and manage priority wetland habitats for migration, wintering, and production of waterfowl, with special consideration to black ducks, and to benefit other wildlife in the joint venture area." The Black Duck Joint Venture plan also relates to our CCP. American black ducks use the refuge during the winter and migration, but are less common during their breeding season as their primary breeding grounds are in Canada. The Black Duck Joint Venture Final Draft Strategic Plan (USFWS/CWS 1993) resides online at <http://www.pwrc.usgs.gov/bdjv/>. We referred to both Joint Venture plans in developing the management objectives and strategies under goals 1 and 2.

**Mid-Atlantic/Southern
New England Bird
Conservation Region
(BCR-30) Implementation
Plan (2007)**

This plan covers the Mid-Atlantic/Southern New England Bird Conservation Region (BCR 30), which extends from southern Maine to coastal Virginia, including the Chesapeake Bay. This region provides important resources for migratory birds whose ranges span the western hemisphere. Habitats associated with coastal ecosystems provide the highest habitat values and provide critical staging areas for migratory waterfowl, waterbirds, shorebirds, and landbirds. Coastal beaches and wetlands, followed by forested upland communities are considered the most important habitats in need of protection for migratory birds in this region.

The purpose of the BCR 30 Plan is to develop common regional goals for bird conservation by integrating information from continental and regional bird conservation initiatives and State wildlife action plans, such as the U.S. Shorebird Conservation Plan, the North American Waterbird Conservation Plan, and the North American Waterfowl Management Plan (see separate discussions of plans below). The specific goals are to (1) identify the highest priority bird species and their specific habitat needs and threats; (2) delineate and define geographic focus areas for priority species; (3) use conservation design methods and modeling approaches to refine identification of important geographic areas; (4) develop models to estimate population and habitat goals for priority species; (5) identify the highest priority monitoring and research needs for birds and habitats; (6) focus resources towards the highest priority birds and the habitats they depend upon; and (7) create a communication platform encouraging dialogue on bird conservation activities both within and between states and partners at the BCR scale.

To help achieve these goals, the plan lists 134 priority bird species for BCR 30 and identifies the region's coastal beaches, wetlands, and forested upland communities as the most important habitat types in need of protection. Throughout the region, the greatest threats to the conservation of these species and habitats are habitat degradation and loss, fragmentation, invasive species, and human disturbance. The plan also:

- Outlines activities and management actions thought to be most useful in addressing these needs and threats;
- Highlights the most important geographic areas to focus conservation action on; and
- Establishes a regional bird conservation initiative with partners across the BCR 30 to communicate and coordinate conservation planning and implementation.

For more information or to view the entire plan, please visit <http://www.acjv.org/bcr30.htm>. We used this plan to help develop objectives and strategies for goals 1 and 2, and to create appendix A, "Species and Habitats of Conservation Concern."

**North American Waterbird
Conservation Plan
(Version 1, 2002)**

This plan (Kushlan et al., 2002) is an independent partnership among individuals and institutions interested in, or responsible for, conserving water birds and their habitats. The plan is just one element of a multi-faceted conservation program. The primary goal of the plan is to ensure that the distribution, diversity, and abundance of populations and habitats of breeding, migratory, and non-breeding water birds are sustained or restored throughout the lands and waters of North America, Central America, and the Caribbean. It provides a framework for conserving and managing colonially nesting water-dependent birds. In addition, it facilitates continent-wide planning and monitoring, national, state, and

provincial conservation, regional coordination, and local habitat protection and management. You can access the continental plan online at <http://www.pwrc.usgs.gov/nacwcp/nawcp.html>. We referred to this plan as we developed management objectives and strategies under goals 1 and 2, and to create appendix A, “Species and Habitats of Conservation Concern.”

Mid-Atlantic/New England/Maritimes (MANEM) Waterbird Conservation Plan (2008)

A partnership of organizations and individuals working to facilitate waterbird conservation in the Mid-Atlantic/New England/Maritimes (MANEM) region of the U.S and Canada has developed this regional waterbird conservation plan. Over 200 partners comprising the MANEM Waterbird Working Group compiled and interpreted technical information on the region’s waterbird populations and habitats, assessed conservation status of these natural resources, developed strategies to ensure the persistence of sustainable waterbird populations in the region, and identified near term priorities. MANEM partners include wildlife managers, scientists, policy makers, educators, and other supporters.

The MANEM region consists of Bird Conservation Regions 14 (Atlantic Northern Forest) and 30 (New England/Mid-Atlantic Coast), and Pelagic Bird Conservation Regions 78 (Northeast US Continental Shelf) and 79 (Scotian Shelf). The MANEM Waterbird Conservation Plan is being implemented within the context and framework of the North American Waterbird Conservation Plan—a project of the Waterbird Conservation for the Americas Initiative. You can access the plan online at <http://www.waterbirdconservation.org>.

Seventy-four waterbird species use habitats in MANEM for breeding, migrating, and wintering. Avian families include loons, grebes, shearwaters, storm-petrels, boobies, pelicans, cormorants, herons, ibises, rails, gulls, terns, skuas, jaegers and alcids. Partners in 4 subregions of MANEM selected 43 focal species for immediate conservation action. In addition, 55 of MANEM’s waterbirds are identified in state wildlife action plans as “Species of Greatest Conservation Need”.

You can access information on Mid-Atlantic/New England/Maritimes regional planning online at <http://www.fws.gov/birds/waterbirds/MANEM/>. We referred to this plan as we developed management objectives and strategies under goals 1 and 2, and while compiling appendix A.



Donna Dewhurst

Green-winged teal

U.S. Shorebird (2001, 2nd edition) and North Atlantic Regional Shorebird (2000) Plans

Concerns about shorebirds led to the creation of the U.S. Shorebird Conservation Plan in 2000. Brown, et al. published a second edition in May 2001. Developed under a partnership of individuals and organizations throughout the United States, the plan develops conservation goals for each U.S. region, identifies important habitat conservation and research needs, and proposes education and outreach programs to increase public awareness of shorebirds and of threats to them. You may read the U.S. Shorebird Plan online at <http://www.fws.gov/shorebirdplan/USShorebird/downloads/USShorebirdPlan2Ed.pdf>.

In the Northeast, the North Atlantic Regional Shorebird Plan was also drafted to step down the goals of the continental plan to smaller scales to identify priority species, species goals, habitats, and prioritize implementation projects. The North Atlantic Regional Shorebird Plan appears online at <http://www.fws.gov/shorebirdplan/RegionalShorebird/RegionalPlans.htm>. We used both plans in developing our objectives and strategies for goals 1 and 2, and while compiling appendix A.

National Bald Eagle Management Guidelines (2007)

In July 2007, the Service issued a final ruling to officially remove the bald eagle from the Federal list of endangered and threatened species due to successful recovery throughout its range in the lower 48 states. The bald eagle continues to be protected by the Bald and Golden Eagle Protection Act (Eagle Act) and the Migratory Bird Treaty Act (MBTA). The Service developed these National Bald Eagle Management Guidelines to advise landowners, land managers, and others who share public and private lands with bald eagles when and under what circumstances the protective provisions of the Eagle Act may apply to their activities. The guidelines are intended to help people minimize such impacts to bald eagles, particularly where they may constitute disturbance, which is prohibited by the Eagle Act.

The guidelines are intended to: (1) publicize the provisions of the Eagle Act that protect bald eagles to reduce the possibility that people will violate the law, (2) advise landowners, land managers and the general public of the potential for various human activities to disturb bald eagles, and (3) encourage additional nonbinding land management practices that benefit bald eagles. The document is intended primarily as a tool for landowners and planners who seek information and recommendations regarding how to avoid disturbing bald eagles. You can view these management guidelines at: <http://www.fws.gov/migratorybirds/baldeagle.htm>. We referred to these guidelines as we developed management objectives and strategies for bald eagles under goal 1.

Partners-in-Flight Bird Conservation Plans

In 1990, Partners-in-Flight (PIF) began as a voluntary, international coalition of government agencies, conservation organizations, academic institutions, private industries, and citizens dedicated to reversing the population declines of bird species and “keeping common birds common.” The foundation of its long-term strategy is a series of scientifically based bird conservation plans using physiographic areas as planning units.

The goal of each PIF plan is to ensure the long-term maintenance of healthy populations of native birds, primarily non-game birds. The plan for each physiographic area ranks bird species according to their conservation priority, describes their desired habitat conditions, develops biological objectives, and recommends conservation measures. The priority ranking factors in habitat loss, population trends, and the vulnerability of a species and its habitats to regional and local threats.

Physiographic Area 44—Mid-Atlantic Coastal Plain Bird Conservation Plan (April 1999)

Our project area lies in Physiographic Area 44, the Mid-Atlantic Coastal Plain. We referred to this plan as we developed our management objectives and strategies under goals 1 and 2. The plan can be accessed at http://www.blm.gov/wildlife/pl_44sum.htm.

The plan includes objectives for the following habitat types and associated species of conservation concern on the refuge:

- **Forested Wetland:** cerulean warbler (*Dendroica cerulea*), Swainson’s warbler (*Limnothlypis swainsonii*), Kentucky warbler (*Oporornis fromosus*), Acadian flycatcher (*Empidonax virens*), yellow-throated vireo (*Vireo flavifrons*), prothonotary warbler (*Protonotaria citrea*), and Louisiana waterthrush (*Seiurus motacilla*).
- **Mixed Upland Forest:** cerulean warbler, wood thrush (*Hylocichla mustelina*), Kentucky warbler, Acadian flycatcher, worm-eating warbler (*Helmitheros vermivorum*), eastern wood-pewee (*Contopus virens*), and Louisiana waterthrush.

- Fresh/Brackish Emergent Wetland: American black duck (*Anas rubripes*) and king rail (*Rallus elegans*).
- We used this plan to help develop objectives and strategies for goals 1 and 2, and to create appendix A, “Species and Habitats of Conservation Concern.”

A Management Plan for the Eastern Population of Tundra Swans (July 2007)

Responsibility for preparing migratory bird flyway management plans lies with Flyway Councils, which are administrative bodies who represent state and provincial wildlife agencies in North America. The Flyway Councils work cooperatively with the Service, the Canadian Wildlife Service, and the Mexican government’s wildlife agency (SEMARNAT). The Eastern Population (EP) of tundra swans (*Cygnus columbianus*) has been managed under a joint, four flyway management plan first developed and implemented in 1982, with additions and updates occurring in 1988 and 1998. Since 1998, a number of research projects have highlighted some of the uncertainties identified in the 1998 plan. This 2007 plan, prepared by the Ad Hoc Eastern Population Tundra Swan Committee of the four Flyway Councils, incorporates new information, particularly related to the use and accuracy of mid-winter counts, and updates its recommendations for the long-term conservation of these swans. It can be accessed on-line at <http://www.mdwfa.org/flyway.html>.

The specific purpose of this plan is to identify population goals, establish guidelines and priorities for management actions, identify strategies and assign responsibilities, specify levels of public use and emphasize research needs to improve the management of EP swans. The primary management goal is to maintain an EP tundra swan population of 80,000 in the Atlantic and Mississippi Flyways. The plan discusses how the protection of breeding, staging, and wintering habitat is critical to this goal and to the long-term maintenance of EP tundra swans and the habitats they rely upon.

The Refuge Complex’s tidal marsh and the surrounding shallow water habitats contribute to this goal by providing staging and wintering habitat for tundra swans. We consulted this plan and its recommended management actions as we developed objectives and strategies under goal 2.

A Management Plan for the Atlantic Population of Canada Geese (March 2008)

The Atlantic Flyway Council’s Canada Goose Committee provides this update to the Atlantic Flyway Canada Goose Management Plan developed in 1989. The 1989 plan established population objectives and emphasized status assessments using wintering ground survey information. In 1996, in response to dramatic declines in the Atlantic Population (AP) Canada goose (*Branta canadensis*) population and coupled with an increase in the resident Canada goose population, the Atlantic Flyway Council developed an action plan to address immediate survey and research needs that would help guide management to rebuild AP goose numbers. Management efforts since 1996 have been directed towards ensuring population growth, resulting in a significant turnaround. This 2008 plan provides management guidelines to promote continued growth of the AP goose population at sustained higher levels. It can be accessed on-line at <http://www.mdwfa.org/flyway.html>.

The overall management goal in this plan is to maintain the AP Canada goose population and their habitats at a level that provides optimum opportunities for people to hunt, view, and otherwise enjoy geese on a sustainable basis. The population objective believed necessary to achieve this goal is to maintain an index of 250,000 breeding pairs of AP Canada geese in the Ungava region of Québec, Canada.

One of the long-term strategies for maintaining this population is the conservation of important breeding, staging, and wintering habitats. The Refuge Complex provides staging and wintering habitat. We referred to this plan as we developed management objectives and strategies under goal 2.

Atlantic Flyway Mute Swan Management Plan (July 2003)

The Atlantic Flyway Council's Snow Goose, Brant and Swan Committee prepared this plan in response to the exponential growth of the invasive, exotic mute swan (*Cygnus olor*) population in the Flyway that was occurring between 1986 and 2002, especially in Maryland and Virginia where the populations were doubling every 12 years. Mute swans are a Eurasian species, not native to North America. They are highly invasive of wetland habitats, impact native species of fish and wildlife, damage commercial agricultural crops, and pose a threat to human health and safety. Because of their consumption of large quantities of submerged aquatic vegetation (SAV) and aggressive behavior, they compete directly with many other native waterbirds and fisheries for limited resources in critical habitats.

The goal of this management plan is to “reduce the mute swan populations in the Atlantic Flyway to levels that will minimize negative ecological impacts to wetland habitats and native migratory waterfowl and to prevent further range expansion into unoccupied areas.” This plan lists five specific management objectives and numerous associated strategies to achieve this goal. It can be accessed on-line at <http://www.mdwfa.org/flyway.html>.

We referred to this plan, as well as the Chesapeake Bay Program's mute swan plan (see below) as we developed management objectives and strategies for dealing with this invasive species under goals 1 and 2.

Mute Swan in the Chesapeake Bay: A Bay-wide Management Plan (June 2004)

This plan (USFWS, 2004) was prepared by the Chesapeake Bay Program's Mute Swan Working Group. We describe the successful partnership that is the foundation of the Chesapeake Bay Program below. Mute swans were identified as one of the highest concerns among the partners in the program when asked which species are causing, or have the highest potential to cause, adverse ecological effects in the Bay's ecosystem. In response to this elevated concern, a working group of researchers, and Federal and State natural resource managers was formed to develop a Bay-wide regional mute swan management plan.

The goal of the plan is to manage the Chesapeake Bay population of mute swans to a level that a) minimizes the impacts on native wildlife, important habitats, and local economies; b) minimizes conflict with humans; c) is in agreement with the Chesapeake Bay Program's Chesapeake 2000 Agreement goals for SAV and invasive species; and, d) is in agreement with the Atlantic Flyway Mute Swan Management Plan. The plan identifies management objectives and strategies that will work to meet this goal. It can be accessed on-line at <http://www.mdwfa.org/flyway.html>.

We consulted this plan as we considered management actions to control mute swan. We describe those in chapter 3, under “Actions Common to All Alternatives.”

Atlantic Flyway Resident Canada Goose Management Plan (July 1999)

This plan was cooperatively written by the State, Provincial, and Federal agencies responsible for managing local-nesting or “resident” Canada geese in the Atlantic Flyway. It does not prescribe specific regulations or dictate management policies or programs, but identifies an overall management goal and five management objectives developed by all the cooperators. The concern with resident Canada geese is that their numbers began to escalate in the 1980s and biologists became concerned that their numbers might be masking a decline

in the number of migratory AP Canada geese. This concern was coupled with the recognition that the resident geese were contributing significantly to sport harvests, and human/goose conflicts in urban and suburban areas. Banding studies have confirmed that these resident geese are a distinct population from the migratory AP Canada geese with very different management needs and opportunities.

We consulted this plan as we considered alternative management actions to benefit waterfowl under goal 1 objectives. Our intent is to continue working closely with VDGIF in managing this species. The plan can be accessed at <http://www.mdwfa.org/flyway.html>.

Partners in Amphibian and Reptile Conservation, National—State Agency Herpetological Conservation Report (Draft 2004)

Partners in Amphibian and Reptile Conservation (PARC) was created in response to the increasing, well-documented national declines in amphibian and reptile populations. PARC members come from state and Federal agencies, conservation organizations, museums, the pet trade industry, nature centers, zoos, utility industries, universities, herpetological organizations, research laboratories, forest industries and environmental consultants. Its five geographic regions—Northeast, Southeast, Midwest, Southwest and Northwest—focus on national and regional herpetofaunal conservation challenges. Regional working groups allow for region-specific communication.

The National State Agency Herpetological Conservation Report (NHCR), a summary report sponsored by PARC, provides a general overview of each state wildlife agency's support for reptile and amphibian conservation and research through September 2004. Each state report was compiled in cooperation with its agency's lead biologist on herpetofaunal conservation. The purpose is to facilitate communication among state agencies and partner organizations throughout the PARC network to identify and address regional and national herpetological priorities.

PARC intends to expand the scope of the NHCR to include other states, provinces, and territories. It will also include other state agencies that are supporting herpetofaunal conservation and research, such as transportation departments, park departments, and forest agencies. The U.S. Geological Survey (USGS) is supporting the Northeastern Partners in Amphibian and Reptile Conservation Home Page as part of its contribution to PARC. It is being served by the Patuxent Wildlife Research Center, part of the USGS Eastern Region (<http://www.pwrc.usgs.gov/partners/>). The next NHCR will also integrate the



John Mosesso, Jr., NBI

Eastern ribbon snake

**U.S. Fish & Wildlife
Service Fisheries Program,
Northeast Region
Strategic Plan 2009–2013
(January 2009)**

list of species of conservation concern into each state's comprehensive wildlife conservation strategy (see below). We referred to the latest draft NHCR plan in developing management objectives and strategies for goals 1 and 2, and in developing appendix A, "Species and Habitats of Conservation Concern."

The Service's Fisheries Program's primary mission is to work with others to maintain self-sustaining, healthy populations of coastal and anadromous fish, fish species that cross state or national boundaries, and endangered aquatic animals and their habitats. In the Northeast Region, 25 fishery management offices and national fish hatcheries work with states and other partners to restore and protect a variety of fish and other aquatic species. Examples include Atlantic salmon (*Salmo salar*), striped bass (*Morone saxatilis*), American shad (*Alosa sapidissima*), river herring (*Alosa pseudoharengus*, *Alosa aestivalis*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), horseshoe crab (*Limulus polyphemus*), American eel (*Anguilla rostrata*), and menhaden (*Brevoortia tyrannus*).

The Fisheries Program has played a vital role in conserving and managing fish and other aquatic resources since 1871. Today, the Fisheries Program is a critical partner with states, tribes, other governments, other Service programs, private organizations, public institutions, and interested citizens in a larger effort to conserve these important resources. In 2002, working with its many partners in aquatic conservation through the Sport Fishing and Boating Partnership Council's Fisheries Steering Committee, the Service completed its Strategic Vision (Vision) document: "Conserving America's Fisheries, U.S. Fish and Wildlife Service Fisheries Program Vision for the Future." That vision document includes goals, objectives, and action items on a national programmatic scale.

The Fisheries Program is committed to working with partners to

- Protect the health of aquatic habitats;
- Restore fish and other aquatic resources; and
- Provide opportunities to enjoy the many benefits of healthy aquatic resources.

The Regional Fisheries Program Strategic Plan is an extension of the vision, describing more specifically the tactics to be implemented by the Northeast Region to fulfill the goals and objectives identified in the vision. The first plan covered years 2004 to 2008. The current plan can be viewed at <http://www.fws.gov/northeast/fisheries/>.

This plan brings together changing national direction, institutional knowledge, analysis of spatial information, and the perspectives of our state and tribal partners to develop a strategic plan that allows this regional program to prioritize its efforts during challenging times, while promoting positive change into the future. As the plan is implemented it will build on a strong foundation of active partnerships and past accomplishments, while recognizing that continued communication, cooperation and expansion of partnerships is essential for successful implementation of this plan and fulfillment of the Program's resource responsibilities and obligations. This plan was built off the lessons learned from implementing the 2004–2008 strategic plan.

One step-down effort resulting from the plan is the identification and ranking of fish and other aquatic species as to their level of conservation concern by hydrologic unit. We used this ranking and have consulted with the Regional Fisheries Program staff in developing aquatic objectives and strategies under goal 2, and in creating appendix A, "Species and Habitats of Conservation Concern."

**Virginia Department of
Game and Inland Fisheries,
Virginia's Comprehensive
Wildlife Conservation
Strategy (2005)**

In 2002, Congress created the State Wildlife Grant Program (SWG), and appropriated \$80 million in grants to help state and tribal fish and wildlife agencies conserve fish and wildlife species of greatest conservation need. The funds appropriated under the program are allocated to states according to a formula that takes into account the state's size and population.

To be eligible for additional Federal grants and satisfy the requirements for participating in the SWG program, each state and U.S. territory needed to develop a statewide "Comprehensive Wildlife Conservation Strategy" and submit it to the National Advisory Acceptance Team by October 1, 2005. Each plan needed to address eight required elements, identify and focus on species of greatest conservation need, yet address the "full array of wildlife" and wildlife-related issues, and to "keep common species common."

The Virginia Comprehensive Wildlife Conservation Strategy, (VDGIF, 2005) more commonly referred to as the Virginia "Wildlife Action Plan" (WAP), developed from that charge. The goal of this plan is to create a vision for conserving Virginia's wildlife and stimulate other states, Federal agencies, and conservation partners to think strategically about their individual and coordinated roles in prioritizing conservation.

In addressing the eight elements below, the Virginia WAP supplements and validates the information on species and habitat and their distribution in our analysis area, and helps us identify conservation threats and management strategies for species and habitats of conservation concern in the CCPs. The WAP was invaluable to us during our planning process because of the depth of expertise and amount of public and partnership involvement that went into its development. We used it in developing objectives and strategies for goals 1 and 2, and in developing appendix A, "Species and Habitats of Conservation Concern." These are the eight elements:

- 1) Information on the distribution and abundance of species of wildlife, including low and declining populations, as the State fish and wildlife agency deems appropriate, that are indicative of the diversity and health of the State's wildlife
- 2) Descriptions of locations and relative condition of key habitats and community types essential to the conservation of species identified in element 1
- 3) Descriptions of problems that may adversely affect species identified in element 1 or their habitats, and priority research and survey efforts needed to identify factors that may assist in restoration and improved conservation of these species and habitats
- 4) Descriptions of conservation actions necessary to conserve the identified species and habitats and priorities for implementing such actions
- 5) Plans proposed for monitoring species identified in element 1 and their habitats, for monitoring the effectiveness of the conservation actions proposed in element 4, and for adapting those conservation actions to respond appropriately to new information or changing conditions
- 6) Description of procedures to review the plan at intervals not to exceed 10 years
- 7) Plans for coordinating, to the extent feasible, the development, implementation, review, and revision of the plan strategy with Federal, State, and local agencies and Native American tribes that manage significant areas of land and water within the state, or administer programs that significantly affect the conservation of identified species and habitats

- 8) Plans for involving the public in the development and implementation of plan strategies

Other Regional Information Sources

We also consulted the plans and resources below as we refined our management objectives and strategies, especially those with a local context.

A Guide to the Conservation of Forest Interior Dwelling Birds in the Chesapeake Bay Critical Area. (Chesapeake Bay Critical Area Commission—Maryland Department of Natural Resources, 2000)

Forest interior dwelling birds (FIDS) require large tracts of forest for nesting, breeding, and foraging habitat. FIDS are a diverse group of birds, including migratory songbirds, woodpeckers, hawks, and owls. Although many of the FIDS species are still relatively common, populations of some of these species are declining. The loss and fragmentation of forested habitats are major threats to all FIDS species. As the Chesapeake Bay region becomes increasingly more developed, the forests these species rely on are becoming further fragmented.

The Chesapeake Bay Critical Area Commission's, "A Guide to the Conservation of Forest Interior Dwelling Birds in the Chesapeake Bay Critical Area," contains a list of the 25 FIDS species that breed in the Chesapeake Bay area, information on how to identify the presence of FIDS habitat, and conservation guidelines on how to manage for these species. The conservation guidelines focus on regional and local land use planning, site design guidelines for developers and landowners, and ways to mitigate impacts on FIDS. This guide is available online at: http://www.dnr.state.md.us/education/envirothon/wildlife/criticalareareg_FIDS.pdf

We used this guide in identifying species of concern in appendix A.

Chesapeake Bay Program. The Chesapeake Bay Program (<http://chesapeakebay.net>) is a unique regional partnership directing and conducting the restoration of the Bay since the signing of the historic 1983 Chesapeake Bay Agreement. The Chesapeake Bay Program partners include the states of Maryland, Pennsylvania and Virginia; the District of Columbia; the Chesapeake Bay Commission, a tri-state legislative body; the Environmental Protection Agency, representing the Federal government; and participating advisory groups. Since its inception, the Bay Program's highest priority has been the restoration of the Bay's living resources, including finfish, shellfish, Bay grasses, and other aquatic life and wildlife. Improvements include fisheries and habitat restoration, recovery of Bay grasses, nutrient and toxic reductions, and significant advances in estuarine science. In April 2007, the Chesapeake Bay Program released its Chesapeake Bay 2006 Health and Restoration Assessment. The report gives watershed residents a clear and concise synopsis of Bay health and on-the-ground restoration efforts taking place across its vast watershed (<http://www.chesapeakebay.net/publication.aspx?publicationid=15548>). The report is divided into two parts: Ecosystem Health and Restoration Efforts. This format of reporting, first used to detail the condition of the Bay in 2005, allows the Bay Program partnership to look at the effectiveness of clean-up actions across the entire watershed and allocate restoration efforts appropriately.

Potomac Conservancy. Its mission is to protect the health, beauty, and enjoyment of the Potomac River and its tributaries. The Conservancy's primary focus is protection of water quality through land protection and sound land use practices. Because clean water alone is not enough, the Conservancy also works to preserve and restore the Potomac's scenic landscapes, and to enhance river-based recreational opportunities. (<http://www.potomac.org/site/about-us/>)

Fairfax County Comprehensive Plan of 2007. This Comprehensive Plan, required by State law, is a guide to decision-making about the built and natural

Red-tailed
hawk



George Gentry/USFWS

environment by the county's Board of Supervisors and other agencies, such as the Planning Commission and the Board of Zoning Appeals. It is also a guide for County staff and the public to use in the planning process.

Prince William County Comprehensive Plan of 2003 with Amendments of 2006. This Comprehensive Plan creates a vision for the future of Prince William County. It is used as a guideline for evaluating and negotiating development applications. Generally, development applications that fail to match Comprehensive Plan goals and actions can be denied. The Comprehensive Plan includes a map that shows planned land uses on a parcel-to-parcel basis. It also lists specific goals and actions that are needed to make the vision a reality.

National Audubon Society's Important Bird Area Program. The National

Audubon Society participates in a global Important Bird Area (IBA) program which identifies areas that are most important for maintaining bird populations and focuses conservation efforts on protecting these sites. In the U.S., more than 1,200 IBAs in 40 states have been identified. The Virginia Audubon chapters have established the following goals for IBAs in the state:

- Identify, document, and publicly recognize Virginia's most important areas for birds.
- Engage people in citizen science and avian conservation cooperative projects with land managers to benefit birds and their habitats at IBAs.
- Partner with others to bring conservation tools and resources to IBAs in need of conservation.
- Base all action on the best available scientific criteria.

The refuge lies in the Lower Potomac River IBA (map 1.5). This 281,134 acre area includes the tidal fresh/brackish reach of the Potomac River extending from Mathias Point to just above Fort Belvoir. It supports a variety of habitats including emergent and forested wetlands, extensive tracts of upland hardwoods, and a diversity of other upland habitats.

The upper tidal reach of the Potomac River has been the focus of intensive ornithological observation for 200 years. Over this time period, the landscape and bird community have changed dramatically. Currently, the area supports a significant community of piscivorous (fish-eating) bird species, including one of

the largest great blue heron (*Ardea herodias*) colonies within the mid-Atlantic region, a dense breeding population of bald eagles, and both a summer and winter concentration area for migrant bald eagles. The rich hardwood forests are strategically important for local breeding populations of neotropical migrants, as well as, stopover areas for northern populations moving through the region in the fall. The waterways support significant populations of waterfowl during migration and winter. This IBA also includes one of only two known breeding locations for the Bachman's warbler (*Vermivora bachmanii*) in Virginia.

To learn more visit the Northern Virginia Audubon Society website at <http://www.audubonva.org/index.php/important-bird-areas-iba>.



Eagle Point Shelter at Mason Neck NWR

Individual Species Plans

We also referred to the following species specific plans while developing management goals, objectives, and strategies for both refuges.

Sensitive Joint-Vetch Recovery Plan; available at http://ecos.fws.gov/docs/recovery_plans/1995/950929b.pdf

American Shad and River Herring Fisheries Management Plan (spawning/nurseries); available at <http://www.asmfc.org/speciesDocuments/shad/fmps/1985FMP.pdf>

Final Recovery Plan for the Shortnose Sturgeon; available at http://www.nmfs.noaa.gov/pr/pdfs/recovery/sturgeon_shortnose.pdf

Interstate Fishery Management Plan for Atlantic Sturgeon and its amendments and addendums; available at <http://www.asmfc.org/speciesDocuments/sturgeon/fmps/fmps/sturgeonFMP.pdf>

American Eel Fisheries Management Plan and addendum; available at <http://www.asmfc.org/speciesDocuments/eel/fmps/eelFMP.pdf>

Small-Whorled Pogonia Recovery Plan; available at http://ecos.fws.gov/docs/recovery_plans/1992/921113b.pdf

Refuge Management Profiles

Establishing Authority and Purpose

Elizabeth Hartwell Mason Neck Refuge (Mason Neck Refuge) was established in 1969 as the Nation's first refuge specifically established to protect a Federal-listed endangered or threatened species—the bald eagle, which was Federal-listed as threatened until 2007. From the initial acquisition of 845 acres in 1969, Mason Neck Refuge has grown to 2,277 acres. This includes 789 acres leased in 1982 for 60 years from the Northern Virginia Regional Park Authority. Map 1.2 depicts the refuge and its current features.

Featherstone National Wildlife Refuge (Featherstone Refuge) was established under Public Law 91-499, approved October 22, 1970 (84 Stat 1095). This law authorized the Secretary of the Interior to acquire, by purchase or exchange, portions of a tract of land in Prince William County, Virginia (then being disposed of by the District of Columbia). As a prerequisite of the transaction, both the Secretary and the District of Columbia had to mutually agree that the lands were formally classified wetlands, or included adjacent lands necessary to protect the natural features of the wetlands, and were worthy of permanent protection. The purchase of the first 164 acres did not occur until 1979. This was followed by a 161 acre gift from Prince William County in 1992 resulting in the present 325-acre refuge. Map 1.3 depicts the refuge and its current features.

Refuge Administration

Mason Neck and Featherstone Refuges are administered as part of the Potomac River National Wildlife Refuge Complex, sharing staff based at Refuge Complex headquarters in Woodbridge, Virginia. Mason Neck Refuge has its own maintenance compound on site. Featherstone Refuge has no onsite facilities and is maintained with equipment located at Occoquan Bay Refuge. The Refuge Complex has six full-time permanent staff members: the refuge manager, assistant refuge manager, outdoor recreation planner, law enforcement officer, administrative assistant, and maintenance worker. These positions have responsibilities throughout the Refuge Complex. The Refuge Complex also may employ seasonal, part-time, or term appointments.

Refuge Operational Plans ("Step-down" Plans)

Refuge planning policy (602 FW 3) lists more than 25 step-down management plans that are generally required for refuges. Those plans outline specific strategies and implementation schedules for achieving refuge goals and objectives. Some plans require annual revisions; others require revision every 5 to 10 years. Some also require additional NEPA analysis, public involvement, and compatibility determinations before we can implement them.

The status of step-down plans on the refuges follows. This draft CCP/EA document incorporates, by reference, those plans that are up-to-date.

Step-down plans and annual updates completed for the Refuge Complex:

- Chronic Wasting Disease (2006)
- Avian Influenza (2006)
- Safety (annually updated)
- Emergency Action (annually updated)
- Continuity of Operations (annually updated)
- Hazard Communications (annually updated)
- Hurricane (annually updated)

The following plan is completed for both Mason Neck and Featherstone Refuges:

- Fire Management (2004; anticipate 2011 update)

The following plans will be completed:

- Law Enforcement (in preparation for the Refuge Complex; will be completed in 2011)

- Habitat Management (HMP; will be done for each refuge)
- Visitor Services (VSP; will be done for each refuge)
- Integrated Pest Management (IPM; will be done for each refuge)
- Inventory and Monitoring (IMP; will be done for each refuge)
- Sign (will be done for each refuge)

In Chapter 3, “Alternatives Considered, Including the Service-preferred Alternative,” we prioritize the development of the plans not yet completed. Additional plans may be required depending on the alternative selected for the final CCPs.

Vision Statements

Very early in the planning process, our team developed the following vision statements to establish a desired condition for the entire Refuge Complex, as well as to provide a guiding management philosophy and convey Mason Neck and Featherstone Refuges’ unique contribution to that overall vision.

Potomac River National Wildlife Refuge Complex Vision

“The Potomac River National Wildlife Refuge Complex provides exceptional forest, grassland, and wetland habitats for wildlife in a dynamic, highly urbanized region of Northern Virginia. We will maintain and enhance those quality habitats along the middle tidal Potomac River for native wildlife, particularly bald eagles and other species of conservation concern.”

The proximity of the Refuge Complex to our Nation’s capital provides unparalleled opportunities to demonstrate the importance of the natural world in enhancing the quality of human life, and to raising public awareness about the value of the National Wildlife Refuge System. Through outreach, education, and partnerships, we will foster stewardship of the living resources of the Potomac River and relate their significance to the greater Chesapeake Bay watershed. Visitors will have diverse opportunities for quality, compatible, wildlife-dependent recreation.”

Elizabeth Hartwell Mason Neck National Wildlife Refuge Vision

“Elizabeth Hartwell Mason Neck National Wildlife Refuge is dedicated to the protection of the bald eagle and exemplifies the significant efforts, contributions and successes of conservationists. The refuge will continue to protect and enhance regionally important habitat for the bald eagle, migratory birds, and native wildlife and plant species. We will provide quality wildlife-dependent recreational and educational opportunities, in particular wildlife viewing and photography. In cooperation with the other public agencies on the Mason Neck Peninsula, we will work to resolve resource issues in the area.”

Featherstone National Wildlife Refuge Vision

“Featherstone National Wildlife Refuge provides valuable acres of ‘wild woods and wetland’ which are rapidly disappearing within this region of Northern Virginia. The refuge will continue to protect wetlands, bottomland hardwoods, and associated native wildlife and plants in an otherwise highly urbanized setting. Assuming access issues are resolved, the refuge will provide quality wildlife-dependent recreational opportunities, in particular wildlife viewing, photography, and fishing.”

Refuge Goals

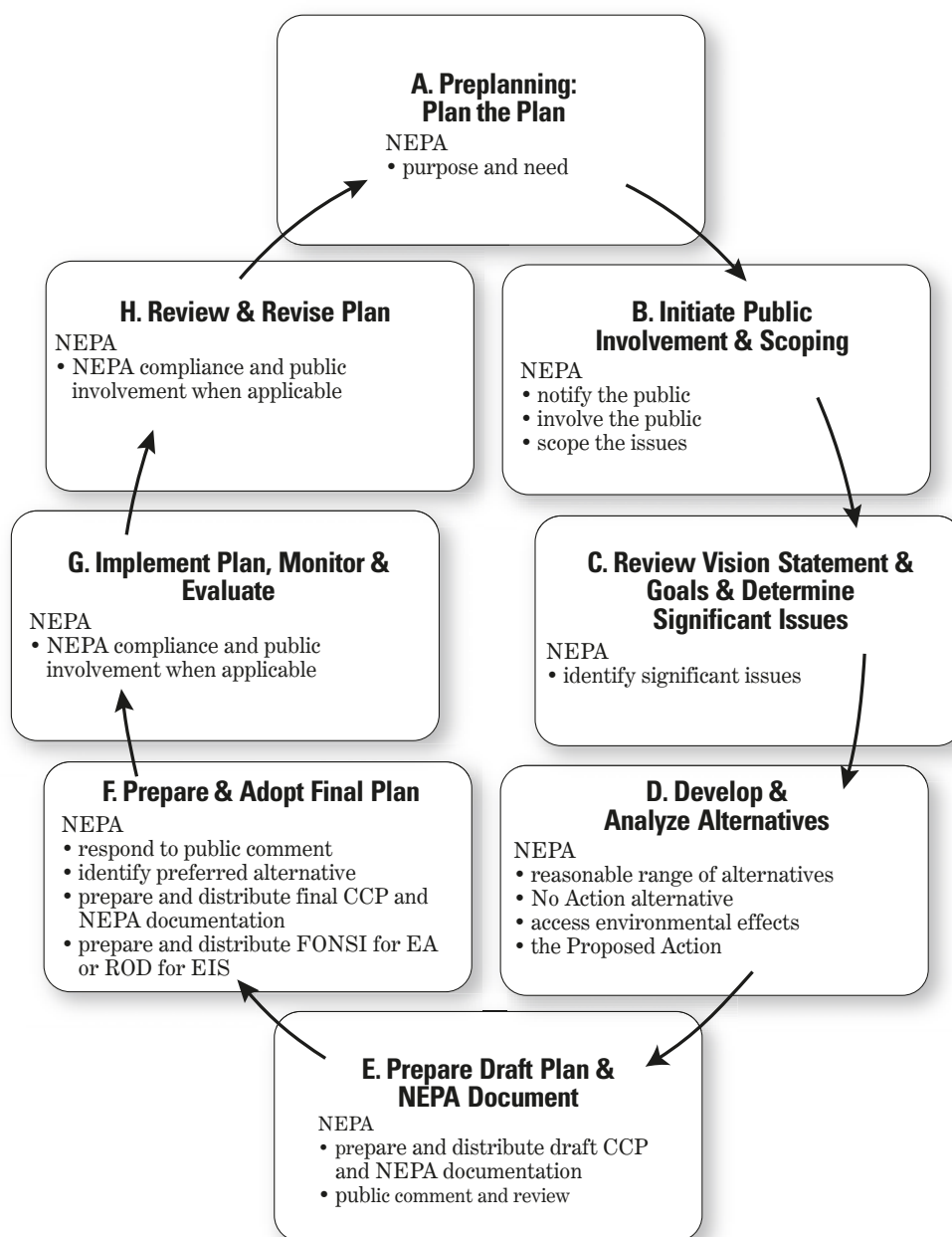
In our discussion on the “purpose of and need for the proposed action” earlier in this chapter, we presented the goals we developed for each refuge. Those goals are based on our vision for each refuge, their respective establishment purposes, the missions of the Service and the Refuge System, and the mandates, plans, and conservation initiatives above. The goals are intentionally broad, descriptive statements of purpose. They highlight elements of our vision for the refuge we will emphasize in its future management. The biological goals take precedence; but otherwise, we do not present them in any particular order. In chapter 3,

The Comprehensive Conservation Planning Process

“Alternatives Considered, Including the Service-preferred Alternative,” we evaluate different ways of achieving the goals.

Service planning policy (602 FW 3) establishes an eight-step planning process that also facilitates our compliance with NEPA (figure 1.1). Our planning policy and CCP training course materials describe those steps in detail. We followed this process in developing this draft CCP/EA document. Although the steps are sequential, CCP planning and NEPA documentation are iterative processes. It is normal to cycle through some steps more than once or to have several steps occurring simultaneously. Also, actions within each of the eight steps may not occur sequentially. For more information visit the website <http://policy.fws.gov/602fw3.html>.

Figure 1.1. The Comprehensive Conservation Planning Process



In 2006, we began developing CCPs for Mason Neck and Featherstone Refuges by collecting information on refuge resources. We also began planning agency and public scoping efforts. We undertook the following actions to complete planning steps A-D.

- Held first CCP core team meeting in September 2006; drafted a vision statement and identified preliminary issues.
- Distributed separate planning newsletters on Mason Neck Refuge and Featherstone Refuge in March 2007 to announce CCP project kick-off, notify the public about the public scoping open house meetings, and share draft vision and goals statements.
- Held open house March 27, 2007 with primary focus on Featherstone Refuge at the Potomac Community Library in Woodbridge, Virginia.
- Held open house March 28, 2007 with a primary focus on Mason Neck Refuge at Gunston Elementary School in Lorton, Virginia. We were prepared to discuss both refuges at either open house date.
- Held a CCP core team meeting March 29, 2007 to discuss the comments made at the scoping meetings, to further define key issues, and to develop a draft CCP schedule.
- Published a Federal Register Notice of Intent (NOI) in May 2007.
- Hosted an inter-agency Visitor Services Program Review that included Service experts and representatives from Mason Neck State Park, Virginia State Parks, and VDGIF on May 15, 2007.
- Hosted an inter-agency Biological Program Station Evaluation that included Service experts and representatives from Mason Neck State Park, Virginia State Parks, and VDGIF on May 16, 2007.
- Distributed a planning newsletter in November 2007 summarizing public scoping comments and describing the visitor services and biological field reviews.
- Held a series of CCP team meetings to develop alternatives from March–October 2007.
- Worked as a team to analyze alternatives and write a draft document from October 2007–September 2010.

As part of the planning process, we also evaluated Service fee-owned lands on the refuges for their possible inclusion into the National Wilderness Preservation System. We completed that evaluation in 2008 with the recommendation that no lands qualified and that we not proceed with a wilderness study. Appendix D shows the results of our assessment.

We also considered whether any waters on the refuges have potential for Federal Wild and Scenic River status. Although Mason Neck Refuge has one border along the Potomac River, the river is not included within its boundaries. The refuge otherwise borders Belmont and Occoquan Bays whose waters are under the jurisdiction of the Commonwealth of Virginia. Featherstone Refuge has one border along Occoquan Bay, and its southern border is along Neabsco Creek. No other river or river segments lie within the refuges.

Eligibility criteria for use by Federal agencies to evaluate wild and scenic rivers potential are recommended by the National Park Service and include consideration of outstanding remarkable values for scenery, recreation, geology or history. We consulted the national rivers inventory database maintained by the National Park Service which documents rivers and river segments that have been evaluated (<http://www.nps.gov/nrcr/programs/rtca/nri/>). Several segments of the Potomac River are identified as potentially eligible. The closest is the 24-mile segment from Nice Memorial Bridge in Charles County, Maryland to Sandy Point in Prince Georges County, Maryland. None of this segment occurs on refuge lands. While we would consider being a part of a more detailed evaluation of the Potomac River in proximity to the Refuge Complex, undertaking its full evaluation is outside the scope of this document and we have determined there is no need to initiate further analysis at this time.

We will complete “Step E: Prepare Draft Plan and NEPA Document,” by publishing our Notice of Availability (NOA) in the Federal Register announcing the release of this draft CCP/EA document and by distributing this document for public review. During a 45-day period of public review, we will hold public meetings to obtain comments. We also expect to receive comments by regular mail and electronic mail. After the comment period expires, we will review and summarize all of the comments we have received and develop our responses. We will present them in an appendix to the final CCPs.

Once we have prepared the final CCPs, we will submit them to our Regional Director for review and approval. He will determine whether they warrant a Finding of No Significant Impact (FONSI), and may find the analysis sufficient to simultaneously issue a decision adopting a CCP for each refuge. If he has concerns, he may require us to revise the EA or complete an environmental impact statement. We will announce his final decision by publishing a Notice of Availability in the Federal Register, where we will also notify people of the availability of the final CCPs. That will complete “Step F: Prepare and Adopt a Final Plan.”

We can then begin “Step G: Implement Plan, Monitor and Evaluate.” We will modify the final CCPs as warranted following the procedures in Service policy (602 FW 1, 3, and 4) and NEPA requirements as part of “Step H: Review and Revise Plan.” Minor revisions that meet the criteria for categorical exclusions (550 FW 3.3C) will require only an environmental action memorandum. As the Refuge Improvement Act and Service policy stipulate, we will review and revise CCPs every 15 years.

Issues, Concerns, and Opportunities

We define issues and concerns as “any unsettled matter requiring a management decision.” An issue can be an “initiative, opportunity, resource management problem, threat to a resource, conflict in use, or a public concern” (602 FWS 1.6). Note the inclusion of “opportunity” in the definition to convey that the context is not always negative. Issues, concerns, and opportunities arise from many sources, including our staff, other Service programs, State agencies, other Federal agencies, our partners, neighbors, user groups, or Congress. One of the distinctions among the proposed management alternatives is how each addresses those issues, concerns, and opportunities. The following summary provides a context for the issues that arose during the scoping process.

Mason Neck Refuge Issues, Concerns, and Opportunities

Based on core team discussions, Federal and State agency scoping, and public scoping, we compiled the following set of issues, concerns, and opportunities to address under our various management objectives.

Maintaining a Biological Program

Establishing a quality biological program is core to the mission of the Refuge System. The 1997 Refuge Improvement Act emphasizes that “wildlife come first” on refuges. Unfortunately, due to budget and staffing changes, the Refuge Complex has been without a wildlife biologist for several years. This has hampered the current staff’s ability to develop a strategic plan for its biological program.

- **Staff Biologist**—If we are to have a viable biological program in the long term, should hiring a wildlife biologist be a high priority for the Refuge Complex?
- **Management Assistance**—How can we best cooperate with VDGIF, other state agencies, conservation partners, and volunteers for assistance with biological inventory, monitoring, and management, and/or other aspects of the biological program?

Bald Eagle Management

With a reduction in pollution, greater awareness and better national and regional protection for populations and their habitat, the bald eagle has made a recovery. In 2007, the bald eagle was officially de-listed under the Federal Endangered Species Act. However, the bald eagle remains one of our priority management concerns because the refuge was originally established for bald eagle conservation and the species remains listed as threatened by the Commonwealth of Virginia.

- **Eagle Nest Tree Protection**—Although the bald eagle nest trees currently benefit from the breakwater project (see shoreline erosion below), how can we ensure continued long-term protection?
- **Preventing Disturbance to Nesting Eagles**—Trail restrictions should continue to be posted to protect active nest trees each year. Should those restrictions change in any way?
- **Future Roost and Nest Trees**—What, if any, site improvements can we make for eagles to ensure there is a sustainable and adequate stock of trees suitable for nesting and roosting? Should this be a major focus of our forest management?

Forest Management

Forest habitat accounts for most of the acres on the refuge. Protecting the diversity, integrity, and health of those forests is fundamental to our mission. We are concerned about many existing and potential threats to this habitat including deer over browsing, pests and pathogens, invasive plants, and climate change. In 2009, the Virginia Department of Forestry (VDF) conducted a Forest Health and Condition Inventory and Assessment for Mason Neck. Overall, they found that the forest as a whole was not healthy (VDF, 2009). The forest was determined to be overstocked, lacking significant regeneration, and missing a shrub and herbaceous layer. The major concerns with these conditions are: stressed trees are less able to fend off disease and pests; the lack of regeneration would mean the forest can not replace itself once trees die; and the lack of shrub and herbaceous understory means degraded habitat conditions for many forest dwelling species.

- **Forest Health**—How can we effectively implement the VDF’s recommendations, as presented in their Forest Health and Condition Inventory and Assessment, to help meet our forest health objectives? Which ones should be a priority?

- **Deer Impacts on Forest**—The forest habitat on the refuge appears to be recovering from its previously overbrowsed condition due to reductions in the deer herd from managed hunts. How can we ensure overbrowsing does not occur again?
- **Deer Management Coordination**—White-tailed deer (*Odocoileus virginianus*) are a problem across the Mason Neck Peninsula and it will take a coordinated effort among agencies to make any more significant improvement in habitats. How can we best continue to play a principal role in that collaborative effort?
- **Deer Exclosures**—Currently there are about 20 deer exclosures on the refuge, each showing differences in vegetation growth and forest floor diversity. These exclosures have not been monitored in the last several years, but many are in disrepair. What should be done with the deer exclosures?
 - Is the Bureau Land Management (BLM) still interested in using some at the Meadowood Recreation Area?
 - Is there an interpretation message about deer overbrowsing that could be facilitated at one of the exclosures visible location alongside a trail? The exclosure beside the Great Marsh Trail is in good condition and a possibility. Is this a good use of refuge staff and resources?
- **Vernal Pools**—What can we do to further protect and promote vernal pools on the refuge?

Heron Rookery

This great blue heron (*Ardea herodias*) rookery was once one of the largest in the Mid-Atlantic region with over 1,600 nests at its peak. It now supports approximately 800 nests. The reasons for this reduction are not entirely clear.

- What are the threats to the rookery on Mason Neck Refuge? What steps could we take to address the threats?
- Can it be maintained on the refuge, or on other protected lands in the area?

Wetlands—Little Marsh Impoundment

Little Marsh Impoundment (50 acres) is a heavily used foraging area for bald eagles and heron. It is partially drained in June and July so that fledgling heron and eagles have better access to food. We need to determine how best to address a number of management issues here.

- The Little Marsh wetland is shallow and becoming increasingly silted in, allowing emergent woody vegetation to encroach. How can we create a greater diversity of emergent marsh vegetation to better support wetland wildlife species?
- In the past, large storms have overtopped the dike threatening to damage or wash it out. How can we address the integrity of the dike?
- The water control structure continues to be damaged and disrupted by beavers. How can we address the integrity of the water control structure?

Wetlands—Great Marsh

Great Marsh (207 acres) is a significant natural resource for the refuge and its protection should be a priority. Great Marsh is one of the largest freshwater marshes in northern Virginia. The marsh contains extensive stands of wild rice and provides habitat for a variety of species including waterfowl and waterbirds (<http://www.fws.gov/refuges/profiles/index.cfm?id=51610>).

- How do we best determine what steps are needed to maintain its integrity and be proactive about certain issues, such as
 - Is water quality adversely affecting the marsh?
 - How do we continue to deal with tide and storm-deposited trash?
 - How do we best prevent invasive plants from taking hold in the marsh?

Other Wetlands

- What management practices are best for waters currently impounded on refuge streams, such as the Little Marsh Road impoundment (approximately 4 acres)?
- Can waterfowl or waterbirds benefit from these smaller impoundments?

Climate Change

Climate change is an issue of increasing concern because of its potential effects on land, water, and biological resources. In addition to warming temperatures, other predicted climate-related changes include changing patterns of precipitation, significant acceleration of sea level rise, changes in season lengths, decreasing range of nighttime versus daytime temperatures, increasing water temperatures, and increasing frequency and intensity of severe weather events (TWS, 2004). Each of these changes would affect wildlife and habitats, but the level of impact would vary depending on the species.

Virginia's WAP identifies more than 900 species that are being impacted by the loss or degradation of their habitats. Many of these species could become extinct or extirpated from the Commonwealth if steps are not taken to reverse these trends. In coming decades, climate change would exacerbate and intensify many of the existing threats and would likely result in new sets of impacts and stressors. In 2009, VDGIF and the Virginia Conservation Network (VCN) produced Virginia's "Strategy for Safeguarding Species of Greatest Conservation Need from the Effects of Climate Change" to provide initial guidance on actions Virginia's conservation community can implement immediately to enhance the conservation of wildlife and habitats in the face of climate change while more comprehensive adaptation strategies are developed (VDGIF et al., 2009).

Conservation strategies include specific actions for conserving species and habitats, developing new data and climate modeling resources, and implementing new outreach efforts related to climate change (VDGIF et al., 2009; <http://bewildvirginia.org/climate-change/>).

- How can we manage adaptively on the refuge to address the predicted climate change impacts? Are there specific actions we can undertake to reduce environmental stressors on wildlife and habitats? Are there particular species or ecological communities that should be a priority to address?
- Is there additional research, impacts modeling, monitoring and inventories we should initiate to serve as a baseline for measuring change and/or predicting impacts?

Shoreline Protection

Shoreline erosion is an existing problem that would be exacerbated with predicted climate change impacts. Erosion is occurring along the entire refuge shoreline, but is most visible along the bluffs. Maintaining a stable shoreline is critical to sustaining the integrity of the refuge and its resources. However, shoreline stabilization can be very complex and expensive and would include coordination with several partners.

- How can we best accomplish additional shoreline protection? Breakwaters have been successful in stopping and reversing erosion trends along the southwest bluffs near the heron rookery. Should this technique be used in other locations?
- Is using fill another feasible and practicable way to stabilize the shoreline? Could we use dredge spoil as a source of material for fill?
- Are there other shoreline stabilization measures we should explore, such as “living shoreline” options?
- Are there partners with expertise willing to assist us in the design, implementation and monitoring of stabilization projects?
- What are funding sources for these projects?

Invasive Plants

Japanese stiltgrass (*Microstegium vimineum*) is the most problematic invasive plant on Mason Neck Refuge; however, there are several other invasive plants that may pose problems in the future. Other invasive species present on the refuge include mile-a-minute (*Polygonum perfoliatum*), tree of heaven (*Ailanthus altissima*), Japanese honeysuckle (*Lonicera japonica*), Japanese barberry (*Berberis thunbergii*) and beefsteak plant (*Perilla frutescens*).

- How can we best control an increasing invasive species problem?
- How do we prioritize treatment?

Invasive Animals/Insects

Emerald ash borer (*Agrilus planipennis*) and gypsy moth (*Lymantria dispar*) are pests recorded on the refuge, and while not currently a problem, they could become one without vigilant monitoring and control, where warranted.

- How can we ensure we are prepared to deal with animal and insect pests in the future?

National Historic Preservation Sites and their Protection

Recent studies identified archeological sites along the shoreline that are jeopardized by erosion.

We need to verify whether or not these sites are eligible for the National Register of Historic Places. We are also concerned about the protection of historical sites. Although we are uncertain of the presence of any important sites, the Mason family was settled on the peninsula for several generations.

- How can we protect the integrity of any sites known or eligible for the National Historic Register?
- Are there issues with public access to these sites? Can we expand refuge uses and still effectively protect these resources?

Public Use and Demands

Mason Neck Refuge is located within driving distance of approximately 10 million residents of Virginia, Maryland, and Washington, DC. The current estimate of 19,100 refuge visitors annually is likely to increase over the next 15 years. Such an increase is especially likely if refuge facilities are expanded or improved, and/or promoting recreational opportunities across Mason Neck Peninsula increases. On the Mason Neck Peninsula alone, public agencies include the refuge, the BLM, Mason Neck State Park, Gunston Hall Plantation, and Pohick Bay Regional Park.

Together, in an informal association referred to as “Mason Neck Managers Group,” representatives of these Federal, State, and regional government agencies share resources and attempt to minimize duplication of effort by coordinating recreational activities. This allows each agency to focus on its strengths such as: general recreation, outdoor or wildlife dependent recreation, resource protection, or historical interpretation. Collectively, the Management Area coordination ensures that the public has the opportunity to enjoy a variety of activities without diminishing the purposes for which they were all created. One priority of the association is to collaboratively and jointly manage in anticipation of a predicted increase in area visitation.

The refuge presently accommodates five out of the six priority public uses. Wildlife observation, nature photography, environmental education, interpretation, and hunting, all occur at some level on the refuge, although demand may not always be met. The only priority public use not allowed anywhere on the refuge is recreational fishing. This is an issue that has been raised by the public. It is not allowed primarily because no opportunities are present in areas open to public access. For example, virtually all of the refuge shoreline (and thus, potential fishing sites) are closed to public access due to concerns with wildlife disturbance or impacts to sensitive habitat areas. Under all alternatives, the fishing closure would remain and we would continue to direct people to the adjacent State Park for fishing.

The major issues we need to address concerning public uses at Mason Neck Refuge are:

- How can we accommodate increased public demand for additional access on the refuge, primarily more walking trails, while not jeopardizing sensitive wildlife and habitat areas?
- How do we effectively explain the decision to allow certain activities on the multi-use High Point trail, where it runs through the refuge, while not allowing some of those same activities on refuge trails?
- How can we best coordinate with Mason Neck State Park, which has well established set of trails that should factor into decisions about an overall trail system?
- How can we best provide trail connections, taking into account distances and parking areas?
- How do we accommodate the public desire for more and better access, yet not complicate law enforcement? We have had several instances where vehicles are locked-in behind the gate after hours. Is there a better system? Should we change the gate type to one which opens from the inside after hours, so no one can get locked in? Is the best location on State Park lands? What is the level of coordination that will be required with State Park enforcement of trailheads and parking lots.
- Is there a potential to develop a new trail along a current refuge road (e.g. Sycamore Road), which leads to a viewpoint on the Potomac River? How do we avoid impacting the private residences along that road?
- Could we link the trail to the road and avoid the residential backyards issue by using the first loop of the Woodmarsh Trail as a connector to a Sycamore Road trail?

- Would this impact any archeological/historical sites?
- The bottom two loops of Woodmarsh Trail are closed December to July to protect nesting eagles so we do not want to open up those areas to public use. How do we integrate that closure into an expanded trails plan?
- Could we create a trail to provide access to Little Marsh? A new Little Marsh trail would access a different habitat type than current refuge and State Park trails because Little Marsh is non-tidal freshwater; the water control structure does not allow tidal influence. Access must be through a controlled road.
- Other issues on trails and trail creation:
 - Can we use existing road surfacing for road-to-trail conversions?
 - The State Park is conceptualizing (no final plans yet) a trail from the primitive campground, out towards Sandy Point, up to High Point Road. How can we best integrate any new or expanded refuge trails with the newly planned trails in the State Park?

Environmental Education

A limited environmental education program occurs on the refuge. Although the refuge has a small established environmental education site, it has not been used in recent years. There is high public demand to increase environmental education opportunities on this refuge, but we have been unable to, given our current level of funding and staffing. Instead we have concentrated our environmental education efforts on Occoquan Bay Refuge.

- Can we improve the quality of our environmental education program given our limited resources?
- Could we effectively expand those educational opportunities through partnerships with other educators?
- Would allowing public access to the environmental education site via the proposed Sycamore Road trail affect the quality of our educational programs?

Northern Virginia Regional Park Authority Lands

A large portion of the refuge, including the Little Marsh area, is land leased from the Northern Virginia Regional Park Authority (NVRPA).

- Should the Service pursue full fee-title ownership of the land?
- Are there opportunities for a land exchange?

Volunteers and Friends

There were a number of individuals, groups, and the Friends of Potomac River Refuges interested in projects to support all three refuges.

- How do we best coordinate efforts among individuals and organizations?
- How do we prioritize our staff and funding resources to develop and support meaningful projects that meet expectations, and are consistent with refuge purpose, goals and objectives?

Featherstone Refuge Issues, Concerns, and Opportunities

Based on core team discussions, agency scoping and public scoping, we developed the following set of issues, concerns, and opportunities which we address under our various management objectives:

Refuge Administration and Management

Management emphasis on this refuge has been limited due to higher priorities for refuge staff and available funding and other resources on Occoquan Bay and Mason Neck Refuges.

- Is the level of management attention on this refuge commensurate with its resource and public use values?
- Are there alternative ways (e.g. partnerships) to increase the effectiveness of management on this refuge?

Maintaining or Restoring Biological Resources

- How can we ensure Featherstone Refuge continues its supporting role in a significant eagle conservation area in the Chesapeake Bay Watershed? Eagles have nested on the refuge in the past. What steps can we take to attract eagles to nest here again?
- Featherstone Refuge has low migratory and resident waterfowl counts in comparison to other areas along the Potomac River.
 - How can we most effectively determine why these numbers are low?
 - Do we need to collect baseline data?
 - How can we most effectively partner with state, local, and conservation groups on this type of project?
- How can we best manage the refuge as a neo-tropical migratory bird breeding and migrating location?
- We know very little about the resources on this refuge. Are there other Federal trust or State species of conservation concern we should be managing for on the refuge?

Protecting Wetlands and Water Quality

Featherstone Refuge was established, in part, to protect its wetlands. The refuge's wetlands are at risk from spills from the adjacent commercial industrial park and from shore water runoff from upland drainages. There is a need to establish soil and water baseline conditions onsite and offsite, and monitor effects from pollutants, to address the following concerns:

- Is the refuge receiving contaminants from the industrial park adjacent to the refuge?
- Are there impacts from former landfill activities?
- Are there impacts from storm water runoff, for example, Farm Creek discoloration, fish kills, other hazards to wildlife from runoff and other pollutants?
- How can we most effectively establish baseline conditions?
- Is storm water runoff and siltation onto the refuge a serious problem?

- Can we establish partnerships with other organizations to conduct monitoring (e.g. Ecological Services Division)?
- Based on baseline results, can we establish partners to help in correcting and mitigating negative results?
- How can we best work with Prince William County to address runoff and drainage issues?

Climate Change and Shoreline Protection

Similar to our discussion for Mason Neck Refuge, Featherstone Refuge is at risk from predicted impacts related to climate change and shoreline erosion. Featherstone Refuge, due to its comparatively lower elevation, is more likely to be affected by rising water levels in the tidal Potomac River. The issues questions identified for climate change on Featherstone Refuge are similar to those for Mason Neck Refuge.

Shoreline erosion is an existing problem that will be exacerbated with predicted climate change impacts. However, unlike the bluffs and steep banks on Mason Neck Refuge, the shoreline of Featherstone Refuge has a more gradual slope and is backed by wetlands rather than upland forest. Rising waters would inundate lower areas and create a mix of new wetland habitats while losing some current shoreline areas. While maintaining a stable shoreline is important to sustaining the integrity of the refuge, protecting the existing shoreline would be daunting challenge. The issues identified for climate change include:

- Is protection of the current shoreline necessary to protect refuge resources?
- At what level of climate change impact/sea level rise would protection of the shoreline become critical?
- What, if any, areas of the shoreline should/would be protected?

Public Access

Public access is the overarching issue at Featherstone Refuge. Currently, there is no public access for several reasons. In order to access the refuge, visitors would have to park on private lands and walk across privately-owned land including an active railroad right-of-way, a gas pipeline right-of-way, and/or a subdivision. Public safety is a major concern with access. We need to address that problem before allowing any public uses in the future.

- Should we look into weekend use of parking facilities near the VRE station as part of a plan to allow access?
- Can we establish partnerships with adjacent landowners for the public to gain access to the refuge?
- The southwest corner of the refuge presents different opportunities for access; can we find a way to work with neighbors in nearby townhouses for the public to gain refuge access?
- Should we consider the possibility of access by water trails for canoeists, kayakers, and power boaters?

Trails and Trail System Integration

Featherstone Refuge is considered a great location in the local area for bird watching and other wildlife viewing, and many residents encourage resolution for

finding safe, public access. Continued public involvement in resolving the access issue, and helping to determine trail needs, could bring increased awareness about these and other issues which impact the refuge.

- Would it be a good area to build a birding trail—using natural materials, observation blinds, and boardwalks over wet areas?
- Can we make use of the old railroad grade that runs through the refuge as a location for a walking trail?
- Could Featherstone Refuge be managed to include a segment of the Potomac Heritage National Scenic Trail? Could we make the portions of the Trail through the refuge accessible for pedestrians only or for pedestrians and bicyclists? Can we partner with the Prince William County to establish a trailhead and to identify a suitable location for trail facilities on the refuge that contributes to a continuous Trail network?
- Can the refuge be integrated with the Virginia Birding and Wildlife Trail?
- Should we consider the possibility of a trail at the southern end of the refuge (under railroad trestle)?

Trespass, Vandalism, Law Enforcement

Trespass and vandalism have been recurring problems on the refuge, although incidents have dramatically decreased with the presence of law enforcement personnel on the Refuge Complex. Trespass by anglers looking for fishing access to the Potomac River, and shelters being built by homeless and displaced people are examples of trespass problems in the recent past. Dumping of household and commercial debris and waste are examples of vandalism that has been a problem.

- Can allowing public access and building trails help with this situation? Will a greater public presence on the refuge reduce incidences of trespass and vandalism?
- Are we distributing our law enforcement effort among the three refuges in the Refuge Complex most effectively to deal with the level of violations and resource impacts?



Bill Wallen

Marsh mallow at Mason Neck Refuge